

THE CANADIAN MEDICAL ASSOCIATION

LE JOURNAL DE

L'ASSOCIATION MÉDICALE CANADIENNE

APRIL 1, 1961 • VOL. 84, NO. 13

MEDICAL EDUCATION

MEDICAL SCHOOL AND TEACHING HOSPITAL: PROBLEMS OF PRESENT AND FUTURE RELATIONSHIPS

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EVER SINCE the Flexner report of 1910, medical schools in the United States and Canada have tried to relate teaching and investigation in the basic sciences to the active observation and study of disease in the wards and outpatient departments of hospitals. In the early stages of the development of medical education in the United States, and to a lesser extent in Canada, the trade schools tried to teach clinical medicine by a series of lectures, with very little opportunity for the students to see or examine patients. This influence probably stemmed from Continental European practice, because in England clinical medical teaching had for years been hospital-centred. Indeed, the great medical schools of London, as is well known, were founded and based in hospitals. Their existence as corporations devoted to teaching preceded by centuries the university with which they are now affiliated.

Up until World War II there were not wanting in most large centres where medical schools flourished in Great Britain, Canada or the United States the numbers and variety of ill and injured humans seeking advice and treatment in the charity wards and dispensaries of the hospitals associated with the schools. Since the Second Great War, however, with increasing employment and prosperity, and the urge for employers to provide hospital and medical care insurance for large numbers of employees, there has been a notable decrease in some centres in the numbers of patients available in teaching units. In certain schools in Canada, even before the establishment of hospital insurance, clinicians were hard put to secure sufficient patients in the outpatient clinics, and the facilities for training specialists were somewhat restricted by the

rise in voluntary hospital insurance and the trend away from what had been for years regarded as "charity ward" care. It is interesting to note that in many centres in the United States there are evidences of similar trends. *The New York Times* of December 12, 1960, commenting on a report of a committee of the Medical Society of New York, gives figures on the gradual increase of voluntary health insurance and the comparable reduction in the number of patients available for teaching in such hospitals as the Presbyterian, the New York Hospital, and the Strong Memorial Hospital in Rochester, N.Y. In the latter centre patients available for teaching had decreased from 68% in 1934 to 12% in 1958, and although the reduction was not as great in Metropolitan New York, it is sufficiently marked to give concern to those who are responsible for postgraduate specialty training.

In 1958 the advent of hospital insurance in Canada was viewed with some concern by medical educators, lest the opportunities for sound clinical teaching should be further prejudiced. The Association of Canadian Medical Colleges, at a special meeting in Ottawa in November 1958, prepared a memorandum outlining some of the possible effects on medical teaching resulting from hospital insurance, and asking for some legislative safeguards to be included in agreements and regulations which were to be prepared by the Federal and Provincial governments. This memorandum was presented to the Honourable the Minister of Health and Welfare in the Federal Government. The members of the Association were graciously received, and left with the feeling that although the problem might not be completely understood, the Minister, his Deputy, and the members of his Department were sympathetic to the feelings of concern expressed by the Association. The Federal Department was inclined to think, however, that the Provinces were left sufficient discretion within the agreements to enable them to make any arrangements necessary regarding teaching hospitals.

Early in 1959 the four medical schools of Ontario, together with their affiliated teaching hos-

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pitals, had an opportunity to discuss their problems with the officers of the Ontario Hospital Services Commission. Again they were received with courtesy and understanding, and were given assurances that the Commission would be glad to receive recommendations from a committee representing the schools, but there was a tendency to regard the questions under discussion as being matters for local consideration with individual schools. Certainly at that time there was hardly a unanimous opinion among all the superintendents and other representatives of hospitals on the question of defining teaching units and their administration. Neither was there any disposition on the part of the Commission to make any special regulations, or to vary accounting practice for teaching hospitals.

The universities in Canada through the years had developed agreements of varying types with the hospitals in which teaching was carried out. In some instances by such agreements all the members of the staff of the hospitals, or at least those parts of the hospitals in which teaching was carried out, were given a double appointment involving membership and rank in the staff of the medical schools and at the same time membership and rank on the staff of the hospital. In other cases the arrangements were less binding. In two provinces, hospitals were organized and known as university hospitals but administered by their own boards. In no instance in Canada has a university owned and operated a hospital, whereas in the United States in several of the medical schools of recent origin, control and administration of the principal teaching hospitals rests with the medical schools. In London, England, the school and the hospital operate almost as a single unit, and it is noteworthy that with the advent of health insurance the teaching hospitals in London, in the provinces of England and in Scotland have remained outside the ordinary control of the Ministry of Health, and they continue to be governed by their own boards of trustees.

At a recent conference of the Association for the Study of Medical Education, held in London, England, the entire program was devoted to the subject of the teaching hospital. Quotations from two of the speakers (*Lancet*, 2: 1293, 1960) illustrate the established opinion on the relation between school and hospital. Professor B. W. Windeyer, Dean of the Middlesex Hospital Medical School, stated, "The ideal to aim at was the happy state where it was impossible to say where medical school ended and hospital began." Professor W. Melville Arnott, Professor of Medicine in Birmingham, speaking of a new building program to replace those hospitals which had become "like the Pyramids, timeless mysteries of masonry", said that it should be a joint hospital-university enterprise, unimpeded by argument about who pays for what share. Such concepts have been unfamiliar to the majority of Canadian medical teaching centres.

There were several reasons why medical schools, particularly in eastern Canada, were not anxious to operate hospitals, although they were aware of the necessity for some sort of control of staff appointments to the teaching units. Hard-pressed for funds for their own purposes, they could ill afford to deal with problems of deficit financing which faced the hospitals each year until the introduction of hospital insurance. Although in many instances there were cross appointments at the board level, the two organizations, the hospital on the one hand and the university on the other, met their separate and complex problems each in its own way. Rehabilitation of old buildings and the building of new wards were financed from public subscriptions, with increasing grants from Federal and Provincial sources in the years since the war. With the institution of hospital insurance, however, the problem of balancing the operating budgets of hospitals has been largely overcome. Hospitals may even be able to show some credit balance from the share they are allowed to retain from charges for semiprivate and private patients.

What is the position now, after more than 18 months' experience with the new plans, in regard to the medical schools and their facilities for clinical teaching in their affiliated hospitals? What is the present attitude of hospitals towards medical schools and their need for an atmosphere of good clinical training? What is the future of medical school-hospital relations under schemes of hospital and medical care insurance? These were some of the questions which were asked at a special meeting of the Association of Canadian Medical Colleges held in Banff on June 18, 1960.

After a good deal of discussion it was decided that a further memorandum should be prepared and presented to the Minister of National Health and Welfare. This brief, while it comments very favourably on the advantages of the hospital insurance plans in the various provinces (then nine in number), and also has warm praise for the co-operation of the commissions and other authorities administering provincial plans, expresses concern for the safeguarding of certain facilities without which medical schools will be unable to discharge their duties of educating an ever-increasing number of undergraduates and providing the proper training for a large number of specialists. It is of course readily recognized that no health insurance plan can function unless it has available from some source a sufficient number of doctors.

The most important point in the brief, perhaps, is the definition and recognition of teaching hospitals and teaching units. In neither the Federal legislation nor, to the writer's knowledge, in any of the Provincial legislations or by-laws is there any reference to medical schools or teaching hospitals. Government officials who are responsible for administering the plans, hospital boards and authorities, and the public generally should be made aware of the peculiar responsibilities of teaching

hospitals. They should not be grouped together for cost accounting and other administrative purposes with all the other hospitals. It is true that in most provinces the hospital insurance authorities have been most sympathetic to the teaching hospital problems, but under the existing legislation they are under no obligation to give such hospitals any special consideration. Moreover there may be evident in some quarters a certain feeling of emancipation on the part of hospital trustee boards. They may in the future be less sensitive to the needs of the schools and to the prestige and influence which in the past have been associated in the minds of the fund-raising public with the status of university affiliation.

The memorandum to the Minister of National Health and Welfare stresses the importance of the maintenance of well-organized outpatient clinics in all teaching hospitals. This is a somewhat tender point with some teaching hospitals in Ontario, because under the present system of accounting the almost certain deficit of a large and active outpatient clinic, which is organized with teaching and follow-up of special cases as one of its important features, is to be deducted from the only source of extra income the hospital enjoys—the profit on private and semiprivate wards. In at least one hospital the statement has been made that the administration will take “a long, hard look” at increasing expenditures in the outpatient clinic, as it is well known that these increases are for the most part associated with improvements in teaching facilities rather than with the servicing of a larger number of patients.

Other areas mentioned in the memorandum to the Minister were features in teaching hospitals which may differ from ordinary general hospitals, such as clinical investigation units, hospital library services, medical illustration and photographic services, somewhat increased establishments for secretaries, and increased numbers of resident and intern staff.

It was the feeling of the Association members that many of the present difficulties, and others which may not be immediately apparent, would be solved by certain modifications in the existing legislation, or at least in the regulations under which the legislation is administered. The Federal Minister and the officers of his Department have given the Association assurance that they will examine the situation carefully, and will certainly give consideration to the suggestions which have been put forward.

There are other things that may be done on the part of the medical schools and the hospitals to help solve these problems. In some way the hospital boards of teaching hospitals must be made aware that they are engaged in a common task with the medical schools in exemplary treatment of the ill and injured, in the teaching of undergraduates, and in the training of specialists. The doctors on the staffs of these hospitals in their capacity as

teachers in the school must do their part. They must see to it that the atmosphere of the teaching units and the outpatient clinics is one of cheerfulness and kindly concern for the patients. No longer can the school or the hospital rely solely on the reputation for expert and specialized treatment—it must provide exemplary treatment in every sense. The principle of attention to the patient as an individual must be the concern of every member of the team, from undergraduate student up to the chief of service, of nurses, therapists, secretaries, social workers, technicians, orderlies and the various other individuals who in a great modern teaching hospital play their parts in bringing comfort and relief to the patients under their joint care.

There is no question that standards of excellence in treatment go hand in hand with teaching and research. This is not necessarily known or appreciated by the average citizen. In Canada it was well recognized by the late Brigadier Warner when at the end of the Second World War, on re-organizing the veterans' hospitals of Canada, he established a close relationship between these hospitals and the medical schools. A generation of veterans has come to recognize the truth of that dictum and looks to the Department hospitals for the best in medical care.

A heavy responsibility rests on the physician-teachers in medical schools to establish a reputation in teaching units of civilian hospitals not only for expert treatment, but for the sort of team effort in individual care and concern which will establish confidence in the minds of both doctors and the public. To effect an atmosphere which is attractive to patients there will need to be considerable changes in the physical arrangements of certain of the older teaching units. Long rows of beds in the old workhouse infirmary ward style are neither necessary nor desirable, nor are they a suitable milieu in which the student and intern should be introduced to practice. Mr. R. V. Hudson (*Lancet*, 2: 90, 1960) makes a good case for the provision of single rooms for all patients in the teaching units, and illustrates his paper with simple plans for the conversion of the wards in English hospitals.

It is urgent that both schools and hospitals examine the problem of the future. The schools cannot carry out their obligations alone. Do existing agreements need revision? Should there be a closer system of interlocking trustee memberships between universities and hospitals? Should there be a larger representation of active staff members on the governing bodies of hospitals? In at least one university medical school, plans are under way for the building of a hospital which will be controlled and operated by a committee of the university board of governors. This reflects, in that community at least, the concern of medical educators for some of the questions that have been raised.

Medical education in Canada is at a critical point in its development. Not least among the new influences which will affect the medical schools is the

impact of hospital insurance now in force in all the provinces of Canada. Medical care insurance in some form is being given serious consideration by all political parties and undoubtedly will affect the plans and thinking of medical educators in the communities where it is introduced.

Approximately one-third of the doctors who have registered for practice in Canada in the past five years are graduates of other than Canadian schools. Undoubtedly there will need to be new schools established to maintain the flow of doctors. It is unlikely that we can always depend on immigration, neither is it desirable that we should do so. Before new schools are established, however, there needs to be a re-examination of medical school-hospital relationships, and certain principles should be established for the guidance of those who undertake the not inconsiderable burden of such a venture.

SUMMARY

Medical schools should continue to be active and integral faculties of universities.

Some means must be effected to bring the governing bodies of hospital and university into closer accord and to reach an understanding of a common objective for exemplary treatment combined with first-class teaching and research. Failing this ideal state of accord and common educational objectives, universities should further explore the idea of control and administration of teaching hospitals.

There is need for improvement in communication between active staff of the teaching hospital and its governing body. Such devices as the joint staff-trustee committees of the British hospitals deserve consideration.

There should be continued representation to governments for the recognition of teaching hospitals and

teaching units both in the legislative language and in the everyday thinking and practice of Federal and Provincial governments.

If teaching units and outpatient teaching clinics are to attract patients in the new era of hospital insurance, the teacher-physicians who staff such units will have to be more public-relations minded. No longer can the "ward" patient take a secondary place in the minds of hospital personnel. From the time the patient reaches the admitting department, he must be made to feel welcome, and this atmosphere of cheerful efficiency and concern for his individual welfare must be continued throughout his stay. The physician-teacher of the future will need to be something more than the erudite specialist appearing on the wards at stated intervals to consult and teach. He is also a senior member of a treatment team, and as such must have a vital interest in all the facets of the life and routine of his unit. Only if the senior staff members are imbued with this spirit—that excellence must prevail in every aspect of the patient's care—will it be reflected in the other members of the treatment team. If such a reputation for excellence is established, it will be difficult to keep patients away. It is unlikely, however, that the teacher will be able to effect all the necessary changes without the closest co-operation with the administrative staff and the trustee board of the hospital.

Through either legislation or government grants the teaching hospitals should be enabled to operate efficient clinics for ambulatory patients, adequate for modern teaching requirements, and the hospitals should not be obliged to face a deficit in so doing. From the standpoint of the teaching staff, patients in such clinics should be seen in so far as possible on an appointment basis. Every effort should be made in co-operation with the administration to eradicate the traditional delays and the rigorous and cheerless atmosphere which have so long been associated with the dispensary clinics of some of the older hospitals.

THE EFFECTS OF THE "FARQUHARSON COMMITTEE REPORT" ON CANADIAN MEDICAL SCHOOLS

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FEW TEACHERS in the Canadian universities know or remember that the program of support by the Federal Government of research in medicine had its beginning in representations made by the Canadian Medical Association. It was in 1937, at the request of the C.M.A. and the Royal College of Physicians and Surgeons of Canada along with the Department of Pensions and National Health, that the National Research Council undertook to set

up an Associate Committee on Medical Research and to convene a conference to discuss the extent to which support was desirable in a program of research in medical science. The conference was held in February 1938, and was attended by representatives of the universities as well as by delegates from organizations interested in the health of our people. Dr. T. H. Leggett, then president of the C.M.A., will be remembered for his contribution to this effort; he was a member of the first National Research Council Associate Committee on Medical Research. While this Associate Committee offered ex-officio membership to the president of the C.M.A., few of Dr. Leggett's successors attended the meetings with the notable exception of Dr. M. A. R. Young who, as the C.M.A. representative for the past few years, devoted his close attention and interest to the committee's functions; it is probable that the sponsoring body believed that its child had the wisdom

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to conduct its affairs without too strong a parental hand. But it is fitting that the debt should be acknowledged of the Canadian medical schools to the C.M.A. for its influence in promoting what has become a very important contribution to medical education.

On a modest budget of \$53,000, grant-in-aid support was offered in 1938 to applicants from the nine Canadian medical schools. In visits to these schools, Sir Frederick Banting, Chairman of the Associate Committee, aroused excitement, interest, and enthusiasm for medical research. He was able to report that there was a pool of capable young medical scientists in the universities who were eager to be active in research, and that increased support should be made available to them. Few but himself knew, at that time, how important this pool was so soon to become. Following the outbreak of war in 1939, the Canadian Government mobilized these young people in their own laboratories or in installations created by government, and set them to work on investigations related to offence or survival in war. The National Research Council and other bodies convened meetings of these scientists and other university teachers experienced in the arts of medicine and surgery to advise the Department of National Defence. In 1946, these medical school teachers had their gifts and achievements recognized in the creation of the Division of Medical Research of the National Research Council, with an initial budget of \$200,000. This was followed by a program of support of research in medicine by the Department of National Health and Welfare, the Department of Veterans Affairs, and the Defence Research Board, all of whom made grants available to scientists in the universities. By 1959, the total annual amount of funds available for extra-mural research from federal grants was close to \$6,000,000.

Despite this support and that offered by such voluntary agencies as the National Cancer Institute of Canada, the Canadian Arthritis and Rheumatism Society, and the Heart Foundations, the medical school Deans felt that the total amount available was not equal to reasonable requirements, and in 1957 asked the Canadian Government to review the question. The "Farquharson Committee Report" is a consequence of this request; and one of its recommendations, namely, that a Medical Research Council be created, came into effect in November 1960.

Teaching in the Canadian medical schools is carried out by medical scientists, some of whom are, additionally, clinicians. The term "scientist" implies activity in a field of science, and in a university includes experience and activity in a field of research as well as responsibility for teaching students. There are good teachers who carry out little research and there are good research men who have little desire for or ability in teaching,

but both of these are exceptions. A dean of medicine, now looking for new staff, finds his candidate less concerned with stipend (because stipends are fairly uniform throughout the universities) than with space and facilities available for research, and advice on how much money may be obtained to support his research. In the medical schools, in the basic sciences and, to a limited degree, in the clinical fields, there is a great deal of graduate training; this must be carried out in good quarters with expensive equipment, under capable investigators. It follows that support for research in medicine is essential to the promotion of good medical education.

The Farquharson Committee recommended:

- "1. That a Medical Research Council be now established under terms similar to those of the National Research Council:
(b) That the Medical Research Council advise on policy and matters relating to medical research."

The Medical Research Council has now been established. The Deans hope that the Government will recognize very seriously the content of paragraph (b), and that, through the Medical Research Council, the needs of the medical schools in the field of research may be represented to and heeded by the Government of Canada.

The Report recommended:

- "6. That the budget of the Medical Research Council be \$4,000,000 for 1960-61, and that substantial annual increments be provided to meet the increased operational costs and inevitable growth of medical research; to provide adequate funds for an expanded program of fellowship training; to provide salaries for additional research workers in the universities, and to make substantial general grants to the medical schools."

The Government has provided a budget of nearly \$4,000,000 for the first year of the Medical Research Council. It has assured Dr. Farquharson that sympathetic attention will be given to the recommendation that annual increments be provided. It was the opinion of the Special Committee who wrote the report that these "substantial annual increments" should soon double and even treble the initial budget. The administration of these large sums of money will require careful examination of applications which come for support to the M.R.C. Heretofore all applications have been carefully scrutinized by capable referees; these come mainly from the Canadian medical schools. These referees are also under pressure to review applications received by other departments of government which provide funds for extra-mural research and by the voluntary agencies. For some members of staff of the medical schools, this is a very exhausting task which engages a great deal of time.

Recommendation 5 of the Farquharson Committee reads:

"That the procedures for the administration of grants be as simple as possible . . . that term grants be made to established investigators to assure continuity of support; and that grants be made outright, allowing flexible use of funds."

There are, in most of the medical schools, investigators of such reputation and productivity as to deserve unqualified support in large amounts with a minimum of refereeing. As funds available to the M.R.C. become substantially increased, the amount of refereeing necessary for the administration of these funds must not be increased proportionately, but should, indeed, be reduced. If this is not done, those persons who should receive the greatest support for their research will have their time so consumed in examining the applications and reports of other scientists that there will be a serious reduction in the efficiency of their own research and their teaching will be impaired.

Recommendation 6 includes provision for an expanded program of fellowship training. This program must include not only the provision of more fellowships but stipends which will make the fellowship training attractive to those who must become our future teachers. New medical schools will be required in Canada. The 12 schools now active find difficulty in recruiting staff; unless more young men and women are trained in the academic life, there can be no expansion of the teaching program in medicine.

Recommendation 6 asks for salaries for additional research workers in the universities. The Special Committee learned that there are teachers in the Canadian medical schools whose teaching load is so heavy as to deny them opportunity for research. It was suggested that the appointment by the Medical Research Council of trained investigators in these teaching departments would stimulate research. If the investigator were permitted to do a moderate amount of teaching, the burdened teacher might find time for his desirable investigations. In the meantime, we must depend upon a vigorous fellowship program if we are to develop the trained investigators capable of accepting these appointments.

In the universities in the U.S.A., it is possible to appoint a teacher of a basic science on an eight- to nine-month program of support by the university and two- to three-month one of research support by a federal granting agency. This is said to provide a more liberal income than would a 12-month appointment by the university and to incite a more serious interest in research. Of course, it has the additional advantage of making it possible for the university to hire more staff. Such a program might be considered by the Medical Research Council.

In describing the inadequacy of current support for research, the Report reads:

"The buildings originally erected for the use of the older medical schools were designed for teaching, with little provision for research. Many of these are still in use; research is conducted in meagre quarters, in laboratories designed for teaching or even in corridors. New buildings or extensions to older buildings have been erected in some schools in the past decade, and buildings combining teaching and research are planned; but university resources have not been adequate to provide all the laboratories necessary for research, since facilities for teaching must be expanded as well. The Deans estimate that a medical school should provide at least as much space for research as is available for teaching. The cost of building, furnishing and equipping laboratories for research greatly exceeds that for teaching; for example, in one school the laboratory furniture installed for research cost two and one-half times that installed in the teaching laboratories and classrooms. . . . All medical schools have insufficient research space, and there is little hope of providing this from university funds."

The Farquharson Committee recommendation 7 is:

"That funds be made available for the construction of urgently needed research buildings and facilities in the medical schools of Canada and affiliated institutions. It is estimated that \$25,000,000 is required now for this purpose by the medical schools, and \$12,000,000 for research facilities in the affiliated teaching hospitals."

The estimate of \$25,000,000 was based on reports received by the Special Committee from the Deans of the twelve medical schools in 1958. It should be considered now as modest, and, based upon obvious current need, should be increased to at least \$35,000,000. The figure of \$12,000,000 came from an informal group of administrators of teaching hospitals. It is a minimal figure. The teaching hospitals should have available not only laboratories for research but clinical investigation units. In establishing a clinical investigation unit, a teaching hospital in the U.S.A. may obtain federal funds for reconstruction of buildings, for the establishment of beds and laboratory facilities, for the staffing of the unit with professional and non-professional staff, and for the support of a research program. No Canadian medical school should lack a clinical investigation unit. There are now a few in existence. These need extra help, but many more should be created.

The Deans have learned that a request for construction grants will be considered by the Federal Government along with similar representations made by universities for grants in other fields, and that it is quite unlikely that the Medical

Research Council will be asked to administer any construction grants for medical schools. The Deans hope that when the need for construction grants for universities is considered by the Federal Government, very sympathetic attention will be paid to the special needs of the faculties of medicine.

The tone of this paper may suggest that the primary desire of the Deans of Canadian medical schools is for *money*. The interests of medical education can be served only if the medical schools

can buy what is needed for education. But no Dean would deny that, apart from its students, the greatest asset of any medical school is its staff, and that the primary need is really opportunity to induce talented young men and women to undertake that training which will lead to a career in medical teaching and research. This is implicit in the Farquharson Committee Report; the implementation of its recommendations will be a great stimulus to medical education as well as to research.

WANTED: MORE AND BETTER MEDICAL STUDENTS THE FACTS AND FIGURES ON MEDICAL EDUCATION

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As in previous years, a questionnaire designed and distributed by the Association of American Medical Colleges, but first collected and analyzed by the Association of Canadian Medical Colleges, provides information on Canadian medical education for the 1959-60 session. It would appear that there is still a need for more students of high calibre if Canada is to continue to be provided with sufficient numbers of able doctors to meet its needs in patient care, preventive medicine, teaching and research.

TABLE I.—TOTAL NUMBERS OF MEDICAL STUDENTS IN CANADA 1957 - 1960

Year of course	1957-58	1958-59	1959-60
1st.....	1011	989	946
2nd.....	914	911	882
3rd.....	928	869	863
4th.....	830	903	858
Totals.....	3683	3672	3549

Table I indicates the total registrations in Canadian medical schools by the year of the course over the last three academic years. With the single exception of the total for the fourth-year group in 1957-58 it will be seen that there has been a steady drop in the registration in each year of the course over the three-year period. The attrition rate among Canadian students is noted in Table II, and this subject will be dealt with later. It is worthy of immediate note that the numbers in the second and fourth years in 1960-61 will be even lower than in 1959-60, while the number in the third year will be essentially unchanged. It would thus appear that for the next three years, at least, there will be no increase in the number of medical graduates,

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TABLE II.—WITHDRAWAL OF STUDENTS FROM CANADIAN MEDICAL FACULTIES IN 1959 - 60

Year of course	Withdrew for academic reasons	Withdrew for other reasons	Total	% of class
1st	53	33	86	9.1
2nd	11	8	19	2.1
3rd	2	5	7	0.8
4th	0	0	0	0.0
Totals	66	46	112	3.1

and this at a time when Canada's population is rapidly increasing.

Not only does the output of our medical schools drop at a time when the population is increasing, but too many students of low academic potential are being registered, and not enough brilliant ones. Table II indicates that 9% of the students entering the first medical year in 1959 did not complete their year satisfactorily, while 2% of those who passed their first year in 1958-59 failed to complete second year. This must indicate that Canadian medical schools are having to accept students who are, to say the least, of borderline ability, and it is certain that some of those who do complete the course just barely manage to do so.

While comparisons of pre-medical education across a country as large as Canada are difficult, it appears that Canadian schools are accepting about 19% of their students with premedical averages in the "C" category. (This is based on an A, B, C scale, C being the lowest level assigned to those who pass.) Only 15% of successful applicants are in the "A" category and the rest are "B". Surely a field so vital to the well-being of a country deserves more than one student in six who could be classified as very good.

In a period when 35% of the newly registered doctors in Canada are foreign-trained, Canadian medical schools could have enrolled 78 more first-year students without changing existing medical school facilities and it is expected that, with only minor changes, in a few years existing schools could (and would be prepared to) accommodate

between 200 and 225 more medical students than they did in 1959-60. Clearly the failure to produce more Canadian-trained doctors lies not in the capacity of Canadian medical schools, at the present moment, but in the lack of suitable applicants.

Approximately 14% of all of the students are from foreign countries (Table III lists the numbers of foreign students in Canadian medical schools, with their country of origin) and many will probably return to these countries to practise, while some Canadians will also settle in other countries;

TABLE III.—COUNTRIES OF ORIGIN OF FOREIGN MEDICAL STUDENTS IN CANADIAN MEDICAL SCHOOLS IN 1959 - 60

Country	Total students	Country	Total students
U.S.A.	305	Ecuador	1
West Indies	66	Ethiopia	1
Hong Kong	35	France	1
Great Britain	14	Ghana	1
China	12	Greece	1
Bermuda	5	India	1
Hungary	5	Israel	1
British Guiana	4	Laos	1
Colombia	3	Liberia	1
Nigeria	3	Malaya	1
Australia	2	Netherlands	1
Germany	2	New Zealand	1
Haiti	2	Nicaragua	1
Jordan	2	Norway	1
Angola	1	Singapore	1
Austria	1	Taiwan	1
Bulgaria	1	Thailand	1
Burma	1	Union of South Africa	1
Dominican Republic	1	Yugoslavia	1
Egypt	1		

thus the figure of 863 who graduated in 1959-60 may really be closer to 700-750, or even less, when these graduates finally set up practice. This number does not seem to be enough to meet Canada's needs. The number of foreign students varies from year to year, but in recent years has been between 10 and 15% of total registrations.

In order to try to offset this drop in registrations six schools have now, or are contemplating, active recruiting programs in an effort to interest more good students in going into medicine. At the same time the C.M.A. has also published a small booklet entitled "Doctors of Tomorrow", which points out the advantages of careers in medicine and is being used as an aid in the recruiting of students, particularly at secondary-school level.

The same survey that obtained the foregoing results for medical students indicated that there are at present some 550 full-time positions on the staffs of Canadian medical schools, and of these 10% are vacant. Although medical school staffs have managed to maintain satisfactory teaching standards while the level of registration is low, it is obvious that any marked increase in the number of medical students would have to be met by a parallel increase in the numbers of staff. Again, at the present time it is not clear where this increased number of staff is to be found, but, if a high standard is to be maintained among our graduates, standards among teaching staff cannot

be allowed to drop. With the large number of "small group" exercises, which are now an integral part of medical education, simply increasing the size of classes without a corresponding increase in the size of the staff will not work. In the last analysis the staff for tomorrow must come from the students of today.

What then is the solution to the immediate problem of the lack of sufficient numbers of well-qualified applicants? Many theories have been offered to explain why there is a difficulty in recruitment, but basically only three major points are significant. There is the problem of high expenses coupled with short summers in which to earn money. There is the long haul of two pre-medical years, plus four medical years, plus a year of compulsory internship before an individual may obtain a licence to practise (and beyond this there may be the many years needed for specialty training). Finally, members of the medical profession work long hours and no longer enjoy the tremendous public respect they once had. To what extent the last two factors affect recruiting is difficult to say and they may well be impossible to overcome entirely, but there is no doubt that the financial problem is one of major importance to prospective students today.

Traditionally, faculty of medicine fees are the very highest in any university (with the possible single exception of dentistry, which is another profession concerned with health that has trouble adequately meeting the needs of the country). Students in Canada pay an average of \$2000 for fees in the four medical years alone, and total expenses for the four medical years are of the order of \$6000 to \$7000 when board and room, books, clothes and instruments are considered. It is generally impossible to earn this amount or any sum approaching it, by summer employment. Loan funds certainly help, but many a prospective student will shy away from incurring several thousand dollars' debt, even if he can obtain this much in loan form, and will seek a course with less costly training and one in which he will not have to assume an even greater debt when equipping an office.

Not even the prestige of being called "doctor" now makes much difference, since a Ph.D. degree is financially much easier to reach than an M.D. and associated with it is the glamour and prestige of carrying out research. A student in any one of the sciences is able to help defray his costs by demonstrating in laboratories early in his career. He has a shorter university term, and a summer job in his science can usually be obtained. Once he is a graduate student various fellowships or assistantships will help him to finance his program of studies in which fees are much below those in medicine; and, if he must seek out increased financial aid, he can often do so by taking an extra year to obtain his degree, using this extra time to earn money by teaching without actually leaving his field of interest. It is clear that when fellowships,

lower fees, etc., are considered, a student proceeding to a Ph.D. degree has a tremendous financial advantage over one proceeding to an M.D.

In the face of these problems, the government of one province has decided to embark upon a plan to provide comprehensive prepaid medical care; one in which it is the avowed intention to have medical care of the highest order. Should this approach spread to other provinces, there will soon be an increased demand for doctors, especially those of the highest calibre, without a corresponding increase in the number or calibre of medical students. Even if there is an increase in students that some say will come to us as a result of the expected rush of students to universities in general, there is no indication that the better students will come in any greater proportion than they do today.

In order to ensure an increase in the number of applications for medical school, especially among the better students, it may well be necessary to stop penalizing the individual financially because he decides to become a medical student. While it may be true that eventually they may expect to join one of the top groups in Canada in the realm of taxable incomes, this prospect is not sufficient,

at present, to lure enough good students into the field.

The problem of the high cost of medical education must be faced realistically. There is no good reason why fees should be so discriminatory, since the cost to the government of educating a medical student is now so high (although probably not a great deal higher than for many other students) that for government to assume the entire fee liability would only increase its contribution to the cost of producing each medical graduate by 20%.

Perhaps a first step in the right direction would be for the provincial governments to take cognizance of the fact that the great majority of withdrawals from medical school occur in the first two years of their courses. In fact, last year only 0.4% of students in the final two years withdrew from Canadian medical schools. In view of this fact could an arrangement not be made to provide free or greatly reduced tuition for the last two years of medicine? If some such approach to the problem is not made, Canada may be faced with an inadequate supply of doctors, many of low ability, at a time when an increased supply is essential and when men of the highest calibre are needed.

PRESENT TRENDS IN MEDICAL EDUCATION

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AT NO TIME since the Flexner report of 1910 has medical education been under closer scrutiny than it is today. In spite of a decreasing number of applicants, the onus is on medical faculties to fulfil the demands for family physicians, teachers, research workers and specialists, all from the same basic mould of medical education.

The public has a genuine interest in medical education. Thus as patients they play a vital role in teaching and as individuals contributing through taxation to the maintenance of medical schools they are concerned with their own health and the calibre and ability of the physicians to whom it is entrusted.

In spite of the esteem in which the individual physician is held, the respect of the public for the medical profession as a whole has seen a progressive decline in recent years. No doubt there are a number of contributing factors. The favourable position of the doctor in the acute short-term illness is apparent. However, his alleged failure to render

adequate continuing care to the chronically ill is quoted as a major factor in the deterioration of the doctor-patient relationship. The magnitude of chronic illness presents an ever increasing problem. There are more people over the age of 65 than ever before, and 80% of all deaths are now due to chronic diseases compared with 40% a few decades ago.

Similarly, socioeconomic trends are changing the doctor-patient concept. Thus recent urbanization, province-wide hospitalization and prepaid medical insurance schemes demand an altered type of medical care. The urbanite's image of the family physician is that of a man well grounded in the principles of medical practice. He is expected to have a sound diagnostic grounding, to be able to deal adequately with common medical and surgical problems and to render continuing medical care to the ever increasing number requiring it. Further, he should be ready to refer problems to the appropriate specialist—for indeed the public will often demand such referral since specialists' services are usually covered by their insurance contracts.

Recent times have seen great changes in social and economic status, in longevity and in the increasing incidence of chronic disease. These changes have been accompanied by a new concept of complete medical care—a change for which adequate provision will have to be made in medical

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education. Indeed the survival of medical practice as we now know it will depend on our ability to meet the ever changing demands of medical care with an equally flexible system of medical education.

The practice of medicine is considered to be both a science and an art, and it is generally agreed that the scientific aspect is the more easily taught. The art, to be appreciated, must be learned from experience, for which there is no substitute. The prerequisites for a good medical student or doctor are difficult to define, since it is impossible to equate motivation and ability to a common parameter. However, a grounding in the liberal arts and humanities will aid the student in appreciating the art of medicine. Such an education is also a defence against the future, since the physician who fades most rapidly under years of professional pressure is generally the one who has no intellectual interest apart from medicine. There is a renewed interest in the liberal arts as a part of premedical education. Indeed it has been suggested that some such course should continue throughout the whole of the medical curriculum.

The importance of the basic science in medical education is undisputed. Despite this and the fact that many of the recent great advances in medicine have been in this area, there has been a progressive reduction in the time allotted to basic science teaching. Opinion is divided concerning the most suitable time for the introduction of the clinical sciences. Thus one view holds that the clinical subjects have no place in the second year of a medical course where they merely dilute the value of the basic sciences. It is further believed that the second year should be returned *in toto* to the basic science teaching. The other view maintains that clinical sciences warrant an even further increase in their present share of the second-year time-table. The best policy probably lies between these two extremes. Thus the second year, and particularly the last half of second year, would seem to be an ideal stage at which to introduce the student to clinical subjects. This could best be done by a co-operative effort of the basic science and clinical departments. The presence of clinicians in the basic science departments is highly desirable. The clinician can stress to the student the direction in which fundamental knowledge must be applied to be of practical value. The clinician is also responsible for the teaching of basic science at the bedside; here he must stress the application of basic principles as they apply to the illness of the patient under discussion.

Current educational trends have broken down the time-honoured rigid interdisciplinary and inter-departmental segregation. The effect of this compartmentalization was to teach the student the technical attributes of each discipline with no reference to the patient as a whole man; further, it isolated faculty members in their own departments. Thus the traditional gap between the basic

and applied sciences is now bridged by joint courses. Such courses emphasize the continuous nature of the learning process and point out the artificiality of departmentalization. Integrated teaching is also apparent in the courses of the purely clinical departments. Thus "survey" courses such as those involving medicine, surgery and clinical radiology are usually taught on a seminar basis. In these courses emphasis is placed on disease entities, their recognition and management, and less importance is attached to the precise roles of the associated specialties. Despite the high cost to the faculty in man-hours, the seminar type of presentation has much to recommend it. Indeed this format has largely replaced the didactic lecture, once the epitome of formal teaching. Through the medium of the lecture a variable mass of information can be delivered to a vast audience. The fact that such information is poorly retained is the alleged basis for the decreasing popularity of this method of teaching. It would seem, however, that the obvious lack of oratorical ability amongst many modern teachers is an equally potent deterrent. Whereas the content of a dull lecture by a dreary lecturer is unlikely to be recalled, the same material delivered by an erudite orator becomes a memorable experience.

Most clinical departments have now supplemented their teaching staffs by the addition of a number of geographic full-time personnel. As a rule these appointees are based in the hospitals. Whereas the bulk of clinical teaching continues to be done by the part-time staff, the new full-time personnel by their continuous presence in the hospital have generally assumed the responsibility for supervision of additional small-group afternoon instruction.

The trend to small-group teaching has greatly increased the demand for clinical instructors. It is in this role that members of the resident house staff make their major contribution to teaching. To the student the status of the staff consultant seems an almost unachievable goal. Thus the resident only a few years the student's senior becomes a realistic symbol of success. It is not surprising therefore that to many students the resident is the physician-image which they hope to emulate. Appointments to the resident staff of teaching hospitals thus warrant the most careful consideration. As an instructor, the resident should not be overburdened with excessive routine ward work, to the exclusion of adequate time to prepare his teaching.

In many schools a period of undergraduate research is now available on a voluntary basis to the better students. These projects are usually of a part-time nature occupying three to six months. Such research is often of real value. In such an academic atmosphere the student will learn the basic concepts of the observation and recording of scientific data. He will also learn the significance of such data when judged by the rigid principles

of logic. It is to be hoped that this experience will stimulate an enquiring attitude of mind.

It is customary to leave one afternoon of each week free for the student to use as he sees fit. In order that this time be used to the best advantage many schools offer a number of elective courses which are given at this time. Some such courses are of a paramedical nature and usually include the social sciences and the history of medicine, while others present a more advanced phase of an earlier course. The success of such elective courses is not yet established.

The desire for an early appreciation of the art of medicine has led to a variety of programs calling for student participation. These programs are usually fostered by the department of social medicine, frequently in co-operation with the department of psychiatry. In some medical schools student contact with the patient is initiated in first year, where he acts in the role of a health counsellor to a particular family. In this way he learns the socio-economic and health problems associated with communal living. It is hoped that this early indoctrination in doctor-patient relationship will improve the student's concept of total medical care. The role of the student as part of a health team is continued into the clinical clerkship in fourth year where he now has definite responsibilities in the "working up" and presenting of patients.

The importance of outpatient teaching has long been recognized in Britain and in many schools on this continent. Others are now encouraging the development of outpatient teaching by improving facilities and appointing full-time medical staff personnel. Teaching in this area is of most value to the senior students. In some schools the major part of fourth-year clinical teaching is now done in this department.

It has repeatedly been stated that, given a first-class student body and a first-class faculty, the curriculum and various course contents become of secondary importance. This may well be, but few universities are blessed with this utopian state. In the less fortunate schools frequent curriculum modifications are necessary to assist the student in the learning process, to make optimum use of the faculty members and to prepare the student in the best way for local practice. The physician must supplement his formal education with lifelong learning. One of the objects of medical education therefore is to stimulate in the student a desire for knowledge. It is apparent then that the teaching of broad basic principles is of more importance than the minutiae of curriculum content.

Although examinations are still believed to be necessary in assessing ability, attempts are being made to reduce their significance. Students are now assessed on a day-to-day basis on their performance in the laboratory or on the wards, their behaviour at the bedside, their case presentations and general medical knowledge. Frequent recording of the student's abilities and an overall assessment at the

end of each trimester have resulted in a much more complete appraisal. Many schools now rate such appraisals of equal value to the final examination. It is to be hoped that such surveillance will produce a more sustained effort by the student.

CONCLUDING REMARKS

Medical education is in a state of change and further changes are imminent. Of late, stress has been placed on the art as well as the science of medicine by introducing the student early to psychiatry and the behavioural sciences. Coupled with this has been the concept of a family medical care program in which the student plays an active role as a member of the health team. Important advances in scientific medicine create a major problem since it is difficult to include them in the already overcrowded course contents. Will the increasing complexity of medicine then make two or more basic types of medical education necessary, a more general one for the family physician and a longer, more detailed one for the future research worker, teacher and specialist? Will we be able to supply the demand for medical care consequent upon the explosive increase in world population? To fulfil these obligations medicine must once again recruit an increasing number of good students. To accomplish this it must compete with other professions and vocations. To these medical recruits the physician's life must be presented in its reality as a long, arduous training followed by hard satisfying work for which he is relatively well rewarded; congenial colleagues; and a place of respect amongst his fellow men.

THE COMPULSORY LECTURE

A much discussed feature of all branches of education is the compulsory lecture. Guy's students will find that there are here, as in nearly all Colleges, a number of lectures at which attendance is required by the regulations of the Medical School and Examining Bodies. Years ago when printing was a laborious and expensive process the lecture was one of the only means by which a man could learn to bring himself "mind to mind" with his teacher. Nowadays the abundance of textbooks and journals has altered the conditions of things entirely . . . But the fact remains that the art of lecturing is a gift vouchsafed to comparatively few teachers. In so far as lectures are compulsory the student is compelled to take the good with the—shall we say—less good. Some men find lectures a genuine help. Others find that half an hour with their books is worth all the lectures in the world. We believe that attendance at lectures should be made an entirely voluntary matter, inasmuch as compulsory attendance is by no means the same thing as compulsory attention. Moreover it can be no satisfaction to a lecturer to know that the well-filled theatre is due less to his own powers than to the stern necessity of his audience being "signed up". A Medical School should not cater for slackers. If lectures are useful, men will go to them. If they are not, they are merely a waste of time both to those who have to attend them and to the lecturers who have probably spent much time and thought upon their preparation.—*Guy's Hospital Gazette*, October 2, 1920.

THE NEW DEPARTMENT OF CONTINUING MEDICAL EDUCATION, UNIVERSITY OF BRITISH COLUMBIA ITS COMPREHENSIVE CO-OPERATIVE PURPOSE

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UPON THE recommendation of Dean John F. McCreary, supported by representative medical opinion in the province, the University of British Columbia on July 1, 1960, established the Department of Continuing Medical Education in the Faculty of Medicine. The new department is charged with the stimulating challenge of developing and administering a comprehensive new educational venture, with which endeavour the Departments of Preventive Medicine and of University Extension will be closely associated.

To assist in the development of the Department of Continuing Medical Education, the W. K. Kellogg Foundation of Battle Creek, Michigan, has generously provided a grant of \$60,000. This very much appreciated, valuable aid assures a sound financial basis for the organizational structure of the department and guarantees stability for its growth during its early formative period.

Three-Fold Purpose and Ultimate Goal

Dean McCreary has stated that the purpose of the department will be three-fold. Its first task will be to work with various medical organizations and hospitals to expand and co-ordinate the courses available for practising physicians. A second function will be to improve internship and residency training programs by working with hospitals. Finally, the department will establish courses to prepare doctors for advanced degrees and specialty qualifications in medicine.

Although the immediate educational purpose of this new venture is to stimulate, co-ordinate and expand the acquisition of knowledge in the medical component of the large and growing "health worker family" in British Columbia, the department, in fact, will constitute an educational means toward attaining the ultimate goal whereby the university will increase substantially its present very considerable contribution to the health of the provincial community in that broad sense of the World Health Organization's concept of health, as the "state of complete physical, mental and social well-being", which is the right of all persons.

Co-operative Association with University, Medical and Other Groups

Serving as a focal point of co-operative integration, the Department of Continuing Medical

Education hopes to enlist the assistance not only of the medical profession, health departments and hospitals, but also that of the other valued professional groups who play an important role in the health field, including nurses, social workers, teachers and others.

The establishing of a Department of Continuing Medical Education in the Faculty of Medicine was recommended by a group representing medical organizations in the province interested in post-graduate education and was endorsed unanimously by the respective parent organizations, which included the B.C. Division of the Canadian Medical Association, the Vancouver Medical Association, the Vancouver General Hospital, St. Paul's Hospital, the College of General Practice, the Medical Division of the Alumni Association of the University of British Columbia, and the Faculty of Medicine.

Close association with the other faculties and departments on the campus concerned directly and indirectly with health affairs will be essential to the success of the new department's efforts, and this applies particularly to an intimate co-operative liaison with Dr. John K. Friesen's outstanding Department of University Extension and its excellent organization, personnel, and facilities.

The Future of the Department

Preliminary study indicates that the Department of Continuing Medical Education will need a 12-month preparatory period before it will be ready to assume its three-fold function as outlined. This first year will be fully occupied by (a) a survey of continuing medical education in British Columbia for the ten-year period 1950 to 1959, (b) study visits to centres of continuing education, and (c) the preparation of a "blueprint" of the organization and administration of the new department. This is the reason why full participation in continuing medical education before July 1, 1961, would be impractical. "To make haste slowly" while the organizational structure is being erected on a sound, carefully planned foundation seems preferable to occupying prematurely a partially constructed edifice.

Once the Department of Continuing Medical Education begins to function, the dynamic implication of the key word in its title, "Continuing", will become apparent. The medical education of the individual in the health field does not cease abruptly upon graduation but continues throughout active life as a self-motivated enlightenment which it is the purpose of the new department created by the Board of Governors of the university in the Faculty of Medicine to encourage and assist. It is the sincere hope of the Department of Continuing Medical Education that it may fulfil well the task entrusted to it by the Dean and made possible by the generous financial assistance of the W. K. Kellogg Foundation.

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Under no more propitious local circumstances could a Department of Continuing Medical Education launch its program: a public, responsive and appreciative; a university growing with vigour; a Faculty of Medicine, young, enthusiastic and entering a phase of rapidly expanding facilities under the visionary leadership of Dean McCreary; an Assistant Dean, James M. Mather, also Professor

and Head of the Department of Preventive Medicine and a former Kellogg Foundation Fellow, who from the inception of the idea of a Department of Continuing Medical Education worked very hard to make the idea become a reality; an outstanding Department of University Extension; and finally, an enthusiastic, co-operative medical profession. All this augurs well for the future.

GRADUATE MEDICAL TRAINING: ITS ORGANIZATION AND ADMINISTRATION*

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GRADUATE training may be defined as well-organized and planned training in the different medical specialties. In many ways this is similar to undergraduate training in that it is planned and organized beforehand as regards time, place and content, and has a definite aim. Graduate training consists in, or should consist in, the supervised study of the basic sciences and clinical subjects, including fundamental research and/or clinical investigation, according to a curriculum specially designed for each graduate student; the aim is to qualify him for the examinations leading to a certificate or degree in a medical specialty.

Undergraduate training consists in the supervised study of basic sciences and clinical subjects according to a definite curriculum for a given number of years, usually in one medical school, with the aim of qualifying the student for the examinations leading to a degree in medicine.

In contradistinction, the term postgraduate training is usually reserved for any medical training, after graduation from a medical school, which is not specially planned or supervised as regards place, time or content and which usually does not aim at formal qualifications.

It should be pointed out that graduate training in some of the specialties requires courses in subjects offered by the faculties of arts and science and other faculties of the university. For example, a course in psychology may be required in the study of psychiatry; in mathematics, for research; in physics, for radiology; and in chemistry and biology, for many of the specialties.

To provide sufficient clinical material for adequate training at the graduate level, it is frequently necessary to enlist the co-operation not only of one but of several hospitals which offer a high standard of service.

Examination Boards of most countries and certainly the Credentials Committee of the Royal College of Physicians and Surgeons of Canada encourage the affiliation of hospitals offering graduate training with university-sponsored graduate training plans. Hospital accreditation committees are also in favour of such affiliation.

It is hardly necessary to point out that the clinical teaching of undergraduate medical students should be carried out only in hospitals which have been officially approved for intern training and preferably for intern and resident training. The university faculty of medicine has to ascertain not only that its affiliated teaching hospitals have received such approval but that minimum standards are always maintained. Most hospital administrators appreciate the stimulating effect on the standard of patient care that is associated with affiliation with a teaching institution.

The ready co-operation of all the departments of a medical school is just as essential for graduate training as it is for undergraduate education in medicine. The head of each department should consider it his duty to the medical school and to the hospital to give all necessary training to graduate students sent to him, whether those students be specializing in his own specialty or in ones far removed from it. For example, the study of pathology is most desirable in the training for internal medicine or surgery, the study of some divisions of physiology for anesthesiology, the study of some divisions of internal medicine for ophthalmology and the study of neurology for neurosurgery.

Certain departments have to give more training to graduate students than other departments, just as some have to contribute more in the education of undergraduates than do other departments. The more heavily burdened departments must be prepared to accept this as an unavoidable and necessary obligation—a rewarding obligation.

Each departmental head knows the requirements for the training of graduate students in his own specialty. He knows that he will probably be requested to provide training also for graduate students in other specialties. To achieve this will require not only co-operation between departments but co-ordination and direction by a higher authority.

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The appropriate higher authority is the dean of the medical school. The dean will normally appoint a graduate training committee, the chairman of which will be the director and co-ordinator of graduate training.

It is generally agreed that without an organized system of graduate training facilities, it would be difficult to obtain in a hospital a satisfactory standard of teaching at the undergraduate level. Similarly it would be difficult, if not impossible, to establish in a hospital a satisfactory teaching program at the graduate level without the stimulus of undergraduate instruction. Indeed, an important part of graduate training is the preparation of and participation in lectures, clinics and demonstrations for the benefit of undergraduate students.

There is, then, great similarity in the two types of training: undergraduate and graduate. There are also many mutually beneficial links between them.

Moreover, future members of the teaching staffs of faculties of medicine will be drawn from among those who have had formal graduate training courses.

Graduate students should be registered with the faculty of graduate studies of the university in the same way as graduate students of all the other faculties. This arrangement places at the disposal of graduate medical students the facilities of the university, including its library, and it also recognizes the contribution which graduate medical students make to the university in undergraduate teaching.

It will be easily understood that the director of graduate training should be chosen from among medical men with clinical experience and with organizing and teaching ability. Such a director might well be a part-time officer in the office of the dean of the medical school. However, it might be well to look to the future when medical schools will undoubtedly require the services of full-time directors for this important field of training.

Not too long ago a hospital superintendent was often a practising physician giving part of his time to administration. Such an arrangement is now impractical, in the average urban communities at least. The administration of a hospital is a full-time job. The same will eventually be true in the field of graduate training.

A first task of the director will be the assessment of the facilities and teaching potentials of the affiliated hospitals. He will then seek the approval of the hospitals by preparing, in co-operation with the hospital superintendents, reports for the consideration of credential committees. He will also endeavour to develop interest and enthusiasm for teaching among hospitals, departments and medical staffs. It will be his duty to demonstrate convincingly to hospital administrators and to practising physicians that the introduction and development of a co-operative program of graduate training are

inevitably followed by the obtaining of more and better residents, by better teaching, better ward rounds, better hospital records, better patient care, better library and research facilities and certainly by finer *esprit de corps* in all the participating institutions. The hospitals must recognize that neither the director nor the graduate training committee can be responsible for providing them with all the residents they may require.

The director will prepare announcements of courses, attend to the documentation of applications for courses, arrange the appointment of selection committees to review applications, and arrange the appointment of an advisory committee for each successful applicant.

Each advisory committee will be requested to plan or assist in the preparation of training programs after consultation with the students and with the heads of departments. The members of these advisory committees continue to act as special and benevolent advisers and tutors to the students in their study and preparation for specialty examinations.

The director will procure positions for each graduate student in the different departments of the medical school (including its research laboratories) and in hospitals as recommended by his advisory committee, revise training programs when required by special circumstances, receive and consider progress reports, guard the interests of students in acquiring necessary credits to meet the requirements of examination boards, and finally but not least important, will give consideration to personal problems which may confront students.

Naturally, most of the activities of the director will be carried out either at the request of or with the approval and co-operation of the heads of departments.

The director will plan the orderly exchange of residents between hospitals. These arrangements will have to be made well ahead of time, for it is only in this way that graduate students can obtain priority of positions. It is the director's responsibility that the graduate student be not exploited by the hospital or by any of its departments. Graduate students should not be moved, for example, from one hospital to another solely because of manpower shortage.

Many special hospital services are essential in a well-rounded graduate training program. The establishment of all of these services is very costly and is usually beyond the means of one single hospital, but they are necessary if the public is to receive adequate medical care. The director may play a useful part in this regard. After surveying the local situation, he could bring together representatives of the different hospitals with a view to solving this and other problems. This would tend to eliminate the normal rivalry and competition between hospitals and allay their fears of losing their identity.

Graduate training courses are of vital importance to a medical school. Graduate students by their presence and their work in the basic science and clinical departments, by their research activities and by their participation in the teaching of undergraduate students, make a worthwhile contribution to the medical school.

A well-organized and well-administered graduate training program becomes a great asset to all participating parties — the university, the medical school and the hospital — and to the public. This point may not be appreciated at first and therefore the program may not initially receive all the sup-

port—moral and financial—that it requires and deserves.

Many obstacles, including the traditional resistance of individual departments, have to be overcome in the initial organization of a graduate training program. In many ways these obstacles are similar to the virgin forest which confronts early pioneers. Trees have to be felled and stumps uprooted before the ground can be cultivated. The ground has to be cleared, tilled and sown. Then follows the harvest. All this can be accomplished, and can only be accomplished, by using to the fullest extent all the potentialities of the Faculty of Medicine and its affiliated hospitals.

A NEW VENTURE AT MCGILL THE COMBINED COURSE IN SCIENCE AND MEDICINE

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ONE OF THE objects of the combined course initiated at McGill in 1960-61 is to save a year's time and several hundred dollars for each student. This is not, however, the primary aim, and it does not differ in length from courses which have been offered for many years all across Canada; one such course, indeed, used to be given at McGill. Occupying seven years after junior matriculation, or six years after senior matriculation, the new course is shorter by a year than the program ordinarily undertaken by McGill students—a four-year college course followed by four years in the professional school. What marks it off from other courses of the same duration is the absence of any "pre-medical" component and an overlapping or "diagonal" curriculum.

It is the common practice of medical schools to set their solons the difficult task of deciding what a doctor needs to know outside medicine—how many courses, if any, it shall require in sociology, psychology, philosophy, calculus, genetics and so forth—not merely to prepare the student for his professional studies but to equip him for his career. The consequence is usually an unedifying debate and a rather rigid program which satisfies nobody. In the name of freedom of choice, a very few electives may be squeezed in, at the cost of eliminating the favourite study of one or another professor, who avers that without this essential "tool" or "discipline" or "attitude", the future doctor will be little better than illiterate, well developed in certain ways, no doubt, but atrophied in others, and thus not really educated.

The "well-rounded" student is not the product of a special college curriculum which can be guaranteed to produce him. Turned on the lathe of "pre-medical education", he usually retains the shape he had at the start and fails to acquire so much as superficial polish. This is hardly surprising. Introductory courses in this, that and the other do not bite very deep. The nearest approach to an ideal balance of the sciences and humanities, the full range of everything a doctor ought to know, is also the nearest approach to nullity.

It is for this reason that no particular "pre-medical course" exists at McGill University. The Calendar has for many years advised the college student who may wish to enter medicine "to plan his course in such a way as to provide more than elementary training in some definite field of learning which appeals to him; this major field may be selected from the natural or social sciences or the humanities". Modern medicine provides opportunities for a wide variety of different talents. A thorough knowledge of *something* is better than a smattering of all that can be compressed into a single timetable. One thick steak is to be preferred to college *canapés*.

This does not mean, of course, that an honours program is absolutely essential. A general arts course, or a general science course, is perfectly satisfactory, although some attempt to achieve depth, happily demanded nowadays by most enlightened colleges, is certainly desirable whatever the course may be called. The point is that something designated "pre-medical", and fondly supposed to possess specific virtues for the making of doctors, should be avoided. By the same token, the student should not be encouraged to manufacture such a course for himself by anticipating medical subjects or by seeking advice on what pre-medical students ought to know. He requires, of course, to be told what they *must* know, the almost universally accepted minimum of physics, chemistry and biology,

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the immediate prerequisites for their medical courses, but this is a different matter. What they *ought* to know cannot be determined so easily, for no two are quite alike and no two will follow quite the same career. Neither are these mysteries to be opened up to them in advance by the percipience of men who will be dead or doddering when they, the new generation, reach the centre of the stage.

At this point in their careers they should forget that they are *pre*-anything; they should not regard themselves as tenderpads, of whom it is demanded that they learn to tie certain knots, recite certain cabalistic words and demonstrate familiarity with the *curriculum vitae* of a Baden-Osler. They are students, like other students, and before them the riches of knowledge are displayed. Many of them will have formed their predilections already. These predilections should not be suppressed for the sake of a programmatic course.

The absolute prerequisites must be taken care of, preferably early. In the first year of McGill's combined course, physics, chemistry, biology and mathematics are required, and there are two electives. In the second year organic chemistry is the only requirement, with five electives. In his third year at college the student undertakes anatomy in the medical school and three electives in McGill College; in his fourth year, the rest of first-year medicine and two electives. Thereafter he is in step with those enrolled in the regular four-year medical curriculum.

One additional requirement is a course in English. This may or may not be a freshman course, depending on the attainments of the individual student. Eleven other full courses are chosen by the student himself. Since he registers in the Faculty of Medicine as well as in the Faculty of Arts and Science as soon as he arrives at McGill, he is subject to no temptation to select only those courses in which he feels he can get high grades with which to pry open the heavy doors of the medical school; this is not necessary, for he is already inside. He is not encouraged to think of himself as pre-medical; he is "in".

Ample opportunity is provided for continuation courses and this he must keep in mind in making his choice. He may, if he wishes to do so, fill in his time-table quite solidly with a single science. If he does not know precisely what he wants, he will be encouraged to follow one continuation in a natural science, one in a social science and one in some branch of the humanities. In any case his program must demonstrate a reasonable pattern for the pursuit of knowledge in as much depth as possible. It will not be approved if it is nothing more than the usual game of hopscotch. Yet within these rules there is considerable freedom of choice, for the number of courses available is large and almost every taste can be satisfied. The diagonal division of the curriculum, medical studies commencing two years before McGill College courses

are completed, breaks down the artificial division between faculties.

This curriculum is a demanding one, each student carrying one course more than is ordinarily expected or permitted. It is intended for a small number of carefully chosen students, students who are capable of meeting such demands without undue strain or anxiety. The maximum number to be admitted directly from high school is 25, and the majority of these will enter with scholarships. Not only academic attainment but emotional maturity and other factors will be taken into account in selection.

At the present time the combined course leads to a general B.Sc. and M.D. It is intended, however, to work out a similar combination with the B.A. degree. This was not done originally because at that time the McGill B.A. program was undergoing extensive revision. This task is now complete and the way is open to devise a combined course in arts and medicine.

Existing six-year courses, following senior matriculation, are ordinarily made up elsewhere of two years of prescribed "indoctrination", with four years of medicine thereafter for those who make the grade. With an extra load and a curriculum diagonally arranged, McGill is offering to particularly able students who have finished junior matriculation with outstanding success the chance to take seventeen full courses at McGill College, with a B.Sc. on completion of these and the subjects of the first two medical years. They have the chance, moreover, to choose a special field of interest and to learn more than the elements in that field. A handful of real "stars" will be allowed to enter the second year of this combined course after senior matriculation.

Some prospective medical students make up their minds about a career early on; others do not discover their vocation until they have had several years of college. Both groups will be accommodated under the new plan at McGill.

Because of the mechanical difficulties of time-tabling, it is possible, I think, to devise a combined course of this nature only at a university which is able to offer a very wide selection of college courses; otherwise restrictions are imposed willy-nilly and the students must take what they can get. In all such larger institutions, however, it is surely worth considering whether or not the old pattern of pre-medicine plus medicine cannot be broken up to advantage, so that all intending medical students will not be pressed into the same mould. A great deal of attention has been paid for many years to the exact design of this standard mould, called the "pre-medical" course, and apparently few medical educators have considered the possibility that the whole apparatus might well be scrapped.

MEDICAL EDUCATION— THE CHALLENGE OF CHANGING PATTERNS

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It is difficult to make any fundamental changes in medical education, although each year medical schools make alterations in the content of lectures, the emphases for different subjects, and the relation of lectures to clinical periods. Medical education needs a careful assessment and subsequent changes if it is to continue to produce men and women who are capable of thinking clearly and of providing high-quality service.

What are some of the important influences which have created the necessity to re-examine medical education? Firstly, there is the changing disease picture. During the last fifty years there has been a dramatic decline in mortality, particularly in the younger and middle age groups. In the groups under 40 years of age the reduction has been as high as 80%. This reduction has largely come about because of success in the prevention and control of most communicable diseases and, in lesser degree, success in the control of many types of chronic illness, such as diabetes mellitus and pernicious anemia. Among the most important influences have been those in the field of public health—safe water supplies, pasteurization of milk, proper sewage disposal, food control, the community-wide use of specific biological products for the prevention of disease, and the introduction of important personal community services, such as public health nursing. In recent years other important influences have been the development of better techniques of infant and child care, better hospital facilities, the greater availability of skilled medical and other personnel, and the use of the specific chemotherapeutic and antibiotic drugs. As a result of the decline in mortality there has been a general prolongation of life expectancy and, therefore, an increase in the incidence and prevalence of diseases common to the middle and older age groups. Many of these are chronic in nature. There has also been a reported increase in certain types of illness, such as arteriosclerotic heart disease and lung cancer, greater than would have been expected from the demographic influence alone. This changed and changing disease pattern presents new problems of long-term care, rehabilitation, cost, and education of personnel.

Secondly, there is the changing picture in medical practice itself. Every month brings new developments in the prevention, diagnosis, and treatment of disease. To give full and effective service to his patients the doctor must now make use of hospitals with their specialized staffing and equipment, of specialists to whom he refers the more

complex cases, of important paramedical personnel, such as nurses, physiotherapists, occupational therapists, medical social workers, and of community resources and facilities, such as public health services, visiting nursing services, visiting homemaker services, and rehabilitation services. Good medical practice today requires a team approach.

Related to these developments is a trend to group practice. Good group practice involves more than a mere sharing of secretarial help and office space among several doctors. It is a genuine sharing of experience, patients, and facilities among the members of the group. It is found to be most effective where groups are large enough to contain both general practitioners and also basic specialists, but where the group is not so large that communication among its members becomes impossible. The worst aspects of economic incentive are removed and there is a real stimulus to do good work. The doctor in a group practice has time for reading, meetings, refresher courses, and his personal life. The patients benefit from the advice of physicians with different training and experience and the availability of care at all times.

Another related trend in medical practice, notably in teaching hospitals and large urban hospitals, is the appointing of specialists only as staff members, in some cases on a full-time salaried basis. More and more, only complicated cases are referred to these hospitals. Less complex illnesses are treated in medium-sized hospitals where general practitioners also have staff privileges. Even in these, qualified specialists often receive the appointments as heads of departments. Except in outlying areas, small hospitals with limited bed capacity and facilities are being replaced by medium-sized ones located in towns.

Thirdly, there is the changing economic pattern. New complex techniques and the increasing specialization of personnel mean increasing costs. For many if not most families the unpredictable costs of illness, especially long periods of illness, present serious financial problems. The depression of the 1930's also had its effect. There was a partial breakdown of traditional methods of providing medical care for those in economic need. Many doctors could no longer give free service to the large numbers of their patients who were unable to pay for it. Many municipalities which had formerly borne the cost of medical care of the indigent were themselves in financial difficulties. Several provinces, usually in co-operation with provincial medical associations, began medical welfare programs. During World War II those in the armed services found themselves able to obtain a degree of complexity of medical care which on the whole they had not been able to obtain in peacetime. Interest was therefore aroused in planning for more active government participation in the provision of health and medical services. A draft bill was tabled in the House of Commons in 1944, but for various reasons no further action was taken by the Dominion Gov-

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ernment in the immediate post-war period. Steps were taken, however, to improve the public health services and to start new services by the introduction of the Dominion-Provincial health grants. The depression which many economists had expected following the end of the war did not occur. Instead there was a period of prosperity with an accompanying upsurge of interest in the provision of medical care by budgeting ahead in the form of private insurance sponsored by professional groups, co-operatives, and private insurance companies. More recently the Dominion and the Provinces have assumed responsibility for basic hospitalization costs. The pattern of budgeting ahead against the unpredictability of illness and its cost has become well established in Canada. The recent appointment of a federal Royal Commission and a provincial Advisory Committee in Saskatchewan to study medical care indicates that further developments will occur in the next few years.

Fourthly, there is the changing social picture. The doctor no longer works surrounded by an aura of mysticism. Instead the full glare of public interest and scrutiny has been turned on him and his work. One great benefit from a better informed public has been the growth of voluntary organizations to encourage research, to indicate areas of unmet need, to demonstrate newer ways of providing care for many diseases, and to meet many of the social needs of people. These voluntary organizations contribute materially to aiding the doctor to provide high-quality medical care.

Public interest has also meant that the provision of medical care has become a live political issue. It is only one aspect of a growing public interest in and demand for social services of a more comprehensive nature. Though it is unfortunate when this public concern is used for partisan purposes, there is much to be gained from an informed and interested public. The medical profession has a responsibility to give thoughtful and constructive leadership to this public interest so that it will be channeled and directed along the lines which will lead to an improvement in the health and medical services available to the Canadian people.

These, then, are the changes which have taken place in the health picture in Canada during the last half-century. What are the needs of the present and the future? In the first place, it is clear that any program designed to improve the health of the people of Canada must be carefully planned to include a balanced pattern of services to promote mental and physical fitness and to provide adequate public health services, diagnostic and treatment services, rehabilitation services, home care services, custodial services, and social services. Research in the areas of mental and physical fitness has lagged behind research in the field of clinical disease. It is difficult to plan ways to improve the health of people when one must think almost entirely of the prevention and treatment of illness. There is also a great need to study the ways in

which health knowledge is communicated to people and the ways in which they are persuaded to alter existing habits.

Approximately 20% of Canadians still live in areas without full-time public health services. It borders on negligence when proven public health measures are not being carried out in every community in Canada. The indifference to public health and preventive medicine shown by many doctors does little to encourage the public to alter this basic lack.

Though for many years there have been extensive rehabilitation programs for injured workmen and armed services personnel, rehabilitation services for the general public, except for certain patients with specific diseases, have been most inadequate. Voluntary agencies are playing a valuable role in demonstrating the worth of rehabilitation in certain diseases. Thus, the situation is improving but many communities still lack satisfactory services. Wise medical leadership is needed to ensure that the scope of rehabilitation services is extended to include all types of illness, not just selected groups.

Pilot home care programs in a number of communities have demonstrated that many people can be cared for outside the hospital and that others can be returned to their homes and to activities earlier than in communities lacking such programs. Most parts of Canada have no such services. Even where these exist, there are usually staff shortages with consequent limitations in the scope of service. The home care program includes the services of social workers, homeworkers, and physiotherapists, as well as public health and visiting nurses, and depends for success on the co-operation of the doctors.

Many people remain in general hospitals longer than medically necessary because of a shortage of convalescent, nursing home, and chronic care accommodation. The solution is not just one of constructing more buildings. There are serious problems of staffing, supervision of standards, and of financing. The care of the aged is a closely related problem. Most older people prefer to remain independent, and most are capable of doing so if certain basic services are available. These include adequate pensions, suitable accommodation, home care programs, and convenient recreation facilities. A few communities have made a start in building apartments or flats specifically designed for older people where they can be completely independent to the degree they wish but where hot meals and simple nursing assistance are available. The outmoded concept of care in large institutions is still followed in many Canadian communities. Though the physical and sanitary aspects of such institutions are usually satisfactory, the atmosphere is often far from home-like. Many are located far from the centre of the city so that the old person suffers from the loneliness of isolation from family, friends, and accustomed haunts.

Social and economic well-being are intimately related to health and physical well-being. Any

balanced pattern of health services needs a corresponding pattern of welfare measures and social services. All too often doctors and social workers regard one another with suspicion and hostility. It is time for these groups to learn to work amicably together in the pursuit of the common good.

In the second place, any program to improve the health of the people of Canada must have quality of service as a guiding principle. Provincial hospital plans, voluntary hospital accreditation schemes, and hospital staff committees, such as tissue committees and mortality committees, are doing a great deal to improve standards of hospital care. Refresher courses and travelling consulting groups sponsored by universities and various medical bodies are helping to bring modern medical knowledge to doctors without close formal hospital relations. These measures do depend for success, however, on the willingness of individual doctors to take advantage of them. For a variety of reasons some doctors are not reached by these means. Professional supervision of professional matters is a fundamental obligation of the medical profession and is a prerequisite of high-quality services. If this privilege of self-control is to be retained, the public has a right to expect protection against not only the unethical doctor but also against the careless doctor who fails to keep up-to-date.

In the third place, any program to improve the health of the people of Canada must provide a greater number and more equitable distribution of personnel and facilities. This is a particularly difficult problem for a country of the size, geographic difference, and varying population of Canada. By construction grants and through the efforts of provincial hospital commissions the different levels of government are trying to increase the number and improve the distribution of hospitals. It is more difficult to achieve similar results for personnel. In 1959 the over-all ratio of civilian doctors to population in Canada was 1 to 918, but there was wide variation among the provinces. One province had fewer than 1 per 2000 people. Even greater disparities are found where qualified specialists are considered. In addition to economic reasons the relative absence of good hospital facilities, roads, cultural amenities, and educational facilities deters doctors from going to certain areas. It is necessary to pay increased attention to these problems if satisfactory solutions are to be found.

How should medical education be altered so that future doctors will understand the changing patterns and be equipped to play their full parts in meeting the resultant needs? During the past year it has been my privilege to study medical education in the United Kingdom, Scandinavia, the U.S.S.R., India, Ceylon, Japan, and Latin America, as well as in North America. Though the precise patterns and needs are different, everywhere there is the same lively concern and the same feeling that medical education must change with the changing times.

Does present medical education in Canada produce graduates who are able to adapt to change and to meet future needs of our country? First, let us look at clinical teaching. Recent innovations which give more time to the students for seeing patients on the wards are good but in themselves are not enough. The kinds of patients which students see in teaching hospitals have changed. One finds increasingly only the highly specialized cases. It is therefore little wonder that more and more graduates wish to enter specialties rather than general practice. This is the only world they have been taught to know. There seems little doubt that one of the fundamental needs in clinical teaching is for the student to receive some type of training in general practice and in the problems which he will actually see as a doctor in the community. General practice teaching projects have been tried in a number of centres. None of these has been entirely successful, however, because the basic orientation of most medical teaching is toward the exposition of disease by specialists whose real enthusiasm is for their own specific fields. The more specialized a doctor becomes, the less ease and facility he feels in dealing with people as human beings and in coping with problems which are not specifically medical but which directly influence the health of his patients. It is, therefore, not unnatural that faculty members are reluctant to participate in programs which are designed to teach practice in the home and community rather than in the specialized hospital.

One of the most successful projects is the general practice teaching unit at Edinburgh University where the students are taught something of the practical realities of good practice in the community. They see people in the normal surroundings of their homes, their jobs, their community, rather than in the artificial and laboratory-like atmosphere of the teaching hospital. Thus, they not only learn about common illnesses but also become aware of the impact of social, economic and emotional factors on the health of patients.

Other interesting programs are those of the Christian Medical Colleges at Ludhiana and Vellore, India, where the students spend part of the final year and of their internship in village health centres. Here they learn the attitudes of the villagers and the way they think about disease. To their surprise they find that village people do not regard disease in the same way as does the highly skilled practitioner. They learn too that one has to be practical in one's approach to people and that one has to solve their economic, social, and emotional problems if one is to be successful in solving their medical problems. The responsibility of the physician does not end with the handing out of a prescription or the giving of good advice.

It is more difficult to translate this type of program into the Canadian teaching pattern, but it does suggest the need for something more than a few summer internships in general practice, which

some of our universities now offer. There is need for an active part in medical education by qualified general practitioners as well as specialists so that the student will develop a balanced attitude. This type of teaching is very difficult when general practitioners work singly. The development of group practice, however, offers an ideal situation for the training of medical students. A portion of the final year might well be spent in working in such groups rather than entirely on the wards of the teaching hospitals. This would be of benefit to the teachers also. It would bring the specialist into contact with the realities of community practice. It would bring the general practitioner into contact with the advancing scientific development of medicine. There is little value in complaining about the number of students who want to specialize and bemoaning the decline of general practice when medical education presents the specialties as the only fields of interest and prestige in medicine. Those who believe in the value of the general practitioner must do more than merely talk about it. They must insist that medical education shall include a balanced type of clinical teaching.

In the second place, a lot of time is spent on the physical and biological sciences related to medicine. It is shocking to find most Canadian medical schools giving their students little or no useful preparation in psychology, sociology, and in the economic structure of the community in which they live. For example, one large Canadian medical school has recently submitted proposals to its faculty council for an undergraduate bachelor's course in medical science. No mention whatsoever of the behavioral and social sciences was made in the brief. If we expect students to be properly equipped to practise medicine in the modern day, we must see to it that their basic science training is a balanced one which includes the social sciences as well as the physical and biological.

Even in the physical and biological fields careful assessment is needed. Do present teaching methods encourage memorization and the blind acceptance of the professors' views rather than stimulating original thinking on the part of the student? It is interesting that there are still medical schools in Canada which do not teach basic statistical methods, experimental design, and the other skills necessary to a proper understanding and use of scientific data. Their students are lost in trying to cope with modern scientific knowledge. Such medical schools may well produce graduates who are technically proficient but they are incapable of contributing to advancing scientific developments. It is a tragedy, indeed, when the safe treading of established paths is substituted for the thrill of venturing into the unknown.

In many ways, the most serious failure of our present medical education is its inability to produce doctors who are equipped to fulfil their social obligations as the guardians of the public health.

A few medical schools make genuine attempts to inculcate concepts of prevention, teamwork, and social responsibility through integrated teaching schemes and joint rounds. Departments of public health and preventive medicine, in most medical schools, attempt to present these concepts. It is useless, however, to expect medical students to believe that they have any validity when most other teachers lay little stress on them. For these concepts to be accepted they must permeate all of medical education. Part of the problem is the hostility which many doctors have towards those in public health, social medicine, and administrative medicine. They are regarded as less than real doctors and anything which they teach is automatically suspect. Part of the hostility can also be traced to the feeling that doctors in public health are the thin edge of government activity in medicine. These attitudes readily communicate themselves to the students. There is little doubt that the patterns of medical practice are changing and will change further. Unless the medical profession understands these changes and is prepared to adapt to them, it will fall increasingly under the domination of non-professional people, not because of public health but because the profession as a whole has refused to recognize the realities of change and has distrusted the very people who are skilled in administrative and community medicine and who could help them to adapt to the changes.

If medical education is to meet the needs of the future, it must include a balance between hospital clinical teaching and community clinical teaching. It must include a balance between the teaching of the physical and biological sciences and the teaching of the social sciences. It must instil throughout the course the concept of the doctor's social responsibility as the guardian of the health of his community. These are changes of some magnitude, but anything less will be insufficient. It is useless to snip off a piece from the curriculum here and add a piece there. The whole basis of medical education must be rethought so that it will produce in the future the kind of physician who is able to meet the challenge of changing patterns.

SUMMARY

The changing disease, medical practice, economic, and social patterns in Canada over the last fifty years are discussed. Present and future needs for a balanced pattern of health services which stress quality and a more equitable distribution of personnel and facilities are outlined. Changes in medical education are necessary if the doctor of the future is to meet successfully the challenge of changing patterns. A balance between hospital clinical teaching and community clinical teaching is needed. Medical education must include a balance between the teaching of the physical and biological sciences and the teaching of the social sciences. It must instil a sense of the doctor's social responsibility as the guardian of the health of the community.

A COMMENTARY ON SOCIOLOGY IN THE MEDICAL SCHOOL

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THE MAJOR hazards to the public health, which once were communicable disease and insanitary circumstance, are today represented by such complex phenomena as cardiovascular disease, accidents and malignant neoplasms. All of these probably differ from the scourges and plagues of former times, in that they are of multiple etiology. In ischemic heart disease, it seems likely that of all the factors currently attracting interest (diet, exercise and stress) each will prove to play some part in causation. It is unlikely that for any of our current major hazards will one single identifiable factor be found, equivalent to the bacillus without which there can be no tuberculosis and the vibrio without which there can be no cholera.

Ischemic heart disease is demonstrably commoner as a cause of death in certain occupational and socioeconomic groups than in others;¹ the social class distribution of duodenal ulcer is notably different from that of gastric ulcer;² the rich appear to have prostates more vulnerable to malignancy than the poor;³ schizophrenia and low socioeconomic class go hand-in-hand.⁴

Social forces and social change impinge upon the concerns of medicine in more ways than in relation to etiology. The whole face of medicine as an institution in society has undergone a drastic change since the beginning of this century. The single-handed physician, working in isolation with almost complete mastery of a craft limited in its knowledge, its tools and its ability to help, is no more. He has been replaced by a scientifically trained physician working in close collaboration with many other physicians, each highly trained to deal with certain aspects of man's health. Each physician in turn is dependent on an extensive range of other professionals, each with his own skills to contribute to what is coming to be recognized as a team.

Not only has the *technology* of medicine become more extensive, more precise and more effective, but the *organization* of medicine has become more complex and continues to do so at a rapidly increasing rate. By the *technology* of medicine is meant "all of those arts of diagnosis, therapeutics, surgery, radiology, dentistry, and the like, which constitute the profession of medicine". By *organization* is meant "all of the arrangements, social and economic, by which medical service is made available."⁵ The distinction is valid. Understanding that the two are distinct is necessary.

The medical profession can learn much from those whose job is the study of social forces, social change and social groups.

The social scientist, whose own body of knowledge has made such rapid strides in this century, is now in a position where he can help medicine to unravel the eternally fascinating riddles of cause and effect. He can also help us to look at ourselves, and at society, and to understand how each can best work with the other for the good of mankind.

Lester Evans, in an address to the University of Saskatchewan in September 1960, suggested that, for the second time in a century, medicine was "looking outwards from itself for help".⁶ The first time we looked to the natural and physical sciences whose welcome aid has so greatly deepened our understanding of man's internal functioning. Perhaps it is not unreasonable to hope that the social sciences may give us equal aid in comprehending man's relationships with the society around him.

Elsewhere in this issue of the Journal, Badgley sketches briefly the history and concepts of one of the social sciences, *sociology*, as it can be applied to teaching and research in medicine; he outlines its place in the curricula of medical schools; he describes in particular the role of a full-time sociologist in one medical school.

In order that the social scientist may be effective in the help that he can give us, it has been the author's belief that he must become as much an integral part of the medical school as are the biochemist and the physiologist.

Sociologists themselves have contended that the type of appointment (full-time or part-time) which a sociologist is given in a medical school conditions the type of relationship which he will have with other members of the medical faculty. Bloom,⁷ in an article in which he examines this problem, states his belief that full-time appointments foster "colleagueship", whereas part-time sociologists tend to regard themselves and to be viewed by others as "consultants". He suggests that the part-time appointment, with the sociologist owing allegiance to a department of sociology as well as to a medical school, has two possible disadvantages. Firstly, a conflict of interests may arise, resulting in an undue emphasis of the duties of either part-time position. Secondly, joint appointments preclude complete evaluation of an individual's academic contribution and may result in a medical faculty's deciding "to postpone its own judgments and decisions, or perhaps to pass the buck to counterparts in the liberal arts college".

Obviously, it is possible that part-time appointments can provide the advantage of a "testing ground" for both sociologists and physicians. Many sociologists, furthermore, are reluctant to abandon completely the academic environment in which they have grown up, and to submit themselves to that scepticism with which they are frequently greeted by physicians. In the full-time situation, however, the medical faculty gives an earnest of its genuine desire to understand and comprehend this newcomer whom it finds in its midst; the sociologist gives an earnest of his

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determination to devote himself exclusively to the study of health and medicine as social phenomena. Furthermore, he becomes truly steeped in the atmosphere of the school, and by constant contact learns to understand more deeply the roles and attitudes of his medical colleagues.

Sociology has become most closely allied to departments of psychiatry and of preventive medicine. Also, different types of sociologist have tended to move into these two spheres. To many physicians, however, the whole breed of the social scientists are somewhat of an enigma, somewhat of a mystery, and indeed of somewhat doubtful value. This scepticism is very real. It is eminently recognizable to anyone who has observed a "typical" physician conversing with a sociologist for the first time, or any sociologist conversing with a physician for the first time. Whence does it stem?

Perhaps the first point of difficulty of communication stems originally from our training, as clinicians, to look above all at the single case and to explore it in great depth but not necessarily to any great breadth. The phrase "this is a patient who", or "I know a patient who" rings true as the coin of conferences and discussions in teaching hospitals through the decades. We are unused, as clinicians, to studying and evaluating group data. The sociologist essentially must generalize about groups, and we have to learn how to make valuable use of our individual patients and of the data which he can give us.

A more serious barrier to good communication between these two sets of inquirers into the common good, may be an attribute that in different ways is shared in common. This is the tendency which both have had in the past to generalize from personally collated observation rather than to adopt a scrupulously sound quantitative approach to problems.

The small print of medical textbooks redounds with statements as to the incidence and prevalence of disease, of the commonness of certain syndromes, based on the cherished speculation of our fathers. The bookshelves of sociology are filled with the speculation of armchair philosophers. This situation is changing. Both medicine and sociology have learned, or are learning, to use the scientific method, to use quantitative data, and even to talk in terms comprehensible to other academic disciplines.

The sociologist who is proving of use to medicine is not the vague armchair philosopher. Rather, like A. B. Hollingshead at Yale University, like Margot Jefferys at the London School of Hygiene, and like Badgley at the University of Saskatchewan, he is a sociologist as scrupulous in his setting up of controls as he is comprehending of the value of painstaking quantification. He is as aware of the need to use simple language to attempt to explain simple truths as any medical man or as any of those scientists with which medicine is more familiar.

A medical sociologist who can use language intelligible to a layman to explain his concepts,

who can at least begin to apply quantitative measurement to social phenomena, and whose life is as much devoted to the promotion of health and medicine as is that of the biochemist, can have a notable influence for good in medical education. He can help the organically oriented student and faculty member to see the social aspects of medicine as something more than vaguely woolly, as being based on more than emotional humanitarianism. He can demonstrate with chapter, verse and survey the facts about social class distribution of illness and the facts about the use that different ethnic groups make of health services. He can confound with effective scientific demonstration many of our myths and can shed new light on many of our most darkly hidden paths.

Perhaps he can play a part in reconciling the apparently diverging trends of modern medicine, the conflict between the scientist and the humanist in all of us. Through him, some of the less explicit parts of medicine may become explicable in terms acceptable to scientists. For certain it is proper that the medical profession should welcome the newcomer; and adapt his skills; and learn some of them themselves; just as within a lifetime the profession has learned to welcome, use and learn chemistry and physics and has adapted these for use in the service of the sick.

Certainly the social component of health and illness requires to be taught on a disciplined, scientific basis, as it can be. Some physicians of today have been known to suggest that the social aspects of medicine "cannot be taught" and can be learned only "in the school of experience". Their fathers and grandfathers saw no reason "for going to university to learn how to amputate a limb": after all, they had learnt it in apprenticeship and through trial and error. Today, we in medicine cannot afford errors. *Pari passu* we cannot afford to ignore scientific skills, however unfamiliar, that are growing up around us.

To a medicine which has perhaps been somewhat obsessed by the fascination of a man as a working, functioning, thinking machine and to a public health which has been obsessed with the physical environment in which man lives, a social science which understands their need can open up fascinating new horizons.

That these horizons are being opened up for our medical students in the 1960's, and for those of us who teach and those who practise, is one small part of the exciting challenge that is medicine today.

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SOCIOLOGY IN THE MEDICAL CURRICULUM

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WHILE MANY of the concepts of medical sociology have long been known to physicians,¹ only recently have these emerged as a relatively co-ordinated area of knowledge. Medical sociology may be defined as the study of social relationships (1) in the medical profession, (2) between the medical profession and its public, and (3) with the etiology of disease. This definition of medical sociology closely approximates Henry E. Sigerist's concept of medicine:² "If we wish to look at the physician in his environment we must not see him in isolation. We must take the patient into account as well. The patient is the physician's justification. Together they form a unit which cannot be torn apart. The relations between these two people, the one seeking aid and the other giving health, constitute medicine."

Medicine, then, as perceived by Sigerist, incorporates the teaching and research areas of medical sociology. Both definitions highlight (1) relations between persons and (2) the social context in which medicine is practised.

Recently, several sourcebooks,³⁻⁵ textbooks,⁶⁻⁸ and bibliographies⁹⁻¹² on medical sociology have been published. The purpose of this article is to etch briefly the history and concepts of medical sociology, to outline its place in the curricula of Canadian and American colleges of medicine, and to describe the role of one full-time medical sociologist at the University of Saskatchewan.

HISTORY OF MEDICAL SOCIOLOGY

During the decade 1950-1960 medical sociology was increasingly given recognition as an academic area of specialization by both physicians and sociologists. This interest is evidenced by the number of sociologists who currently hold appointments in medical schools, the interdisciplinary studies which have been completed and which are in progress, the recent growth of university programs aimed at training more medical sociologists and the publication of a journal devoted to this area, the *Journal of Health and Human Behavior*.

The history of medical sociology extends back to 1894 when Dr. Charles McIntire, a physician, wrote an article in the *Bulletin of the American Academy of Medicine* entitled "The Importance of the Study of Medical Sociology."¹³ McIntire¹⁴ argued that medical sociology should involve:

"1. The study of medical practice—(a) Medicine as a profession, an institution and a segment of social history; (b) Medical status, roles and social interactions in relation to diagnosis, care, management and business activities.

"2. Public health—(a) Social epidemiology and etiology; (b) The investigation and modification of attitudes; (c) Supplementing narrow specialties with general knowledge."

Hawkins,¹⁵ a medical sociologist at the University of Texas, has noted that subsequent writers have not substantially altered this outline. Although McIntire was followed shortly by others who agreed with his support for the new discipline, nevertheless, limited immediate interest was evinced in this area.

Since the Flexner report¹⁶ of 1910, the trend in medicine has emphasized full-time clinical faculties and basic physical science departments. Sociologists, by training and interest, focused upon deriving universal principles of group behaviour rather than executing explicit studies of communities or groups. There were a few notable exceptions in this trend, such as Emile Durkheim's classic study of *Suicide* in 1897.¹⁷

Subsequently, the foci of both physicians and sociologists have changed. As evidenced by the growth of departments of preventive medicine and psychiatry, the understanding of the social and psychological variables linked with the history, diagnosis and management of patients has become more important in the physician's armamentarium. Independently, but concomitantly, sociologists began to study an assortment of health problems.¹⁸⁻²⁰

However, it was not until 12 years ago that the mutual interests of medicine and sociology culminated in the appointment of a sociologist to a medical faculty. Dr. Odin W. Anderson, presently Research Director of the Health Information Foundation in New York City, was the first sociologist in Canada or the United States to join a medical school as a full-time faculty member.²¹ In February 1949, he joined the Department of Psychiatry and Preventive Medicine at the University of Western Ontario. In effect, this appointment formally dates the union of comparable research and teaching interests in medicine and sociology.

DISTRIBUTION AND PROFESSIONAL AFFILIATION

In 1955 an *ad hoc* group of sociologists in the United States organized a Committee on Medical Sociology under the auspices of the American Sociological Association. The first meeting of the committee, which was arranged by Professor August B. Hollingshead of Yale University,²² provided the nucleus for the formation in 1959 of the Medical Sociology Section of the American Sociological Association. In 1960, of a total membership of 386, there were 263 sociologists, 30 physicians, 23 anthropologists, 16 psychologists and 54 in other categories.²³ From 1956 to 1960 the membership grew from 110 to 386. This expansion is accounted for chiefly by the large number of sociologists who have joined the section (91 from 1958 to 1960).

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The majority of the section's members reside in the United States. Of the 10 Canadian members there are five sociologists, a physician, an anthropologist and three others. Eight of the 14 members from other countries live in Great Britain.

In a 1960 census of medical sociologists, only 19 of 263 sociologists indicated that they were *full-time* college of medicine faculty members. An additional 14 sociologists reported that they held *part-time* appointments. These figures tend to be misleading until they are translated into the number of medical schools which employ sociologists. For example, at the University of Washington there are four sociologists (two full-time and two part-time) affiliated with the College of Medicine. Twenty-three American colleges of medicine employ one or more sociologists (16 with at least one full-time appointment, and seven with at least one part-time appointment).

Eleven of the 19 full-time appointments and six of the 14 part-time staff positions are with departments of psychiatry. The remaining full-time positions are with departments of preventive medicine (three), physical medicine (one), a department of behavioural science, and as academic research positions (three). Dr. Robert Straus, Professor of Medical Sociology and Chairman of the Department of Behavioral Science at the University of Kentucky, heads up a department which is unique among medical schools.²⁴

Six medical schools in Canada (McGill University, University of Alberta, University of British Columbia, University of Ottawa, University of Saskatchewan and University of Toronto) offer some sociological instruction to their medical or graduate students. There is almost an even division between departments of psychiatry and departments of preventive medicine in the sponsorship of sociologists in these colleges of medicine. With the exception of the full-time sociologist in the Department of Social and Preventive Medicine at the University of Saskatchewan, the academic affiliation of these sociologists is with departments of sociology and their teaching of medical students is "by invitation" from a particular medical department.

COURSE CONTENT OF MEDICAL SOCIOLOGY

The focus and content of what medical sociologists teach to medical students varies both with their own training and the source of their appointment in a medical school. Even though sociologists receive a comparable basic training in theory and methodology, nevertheless the emphasis of the graduate school which they have attended or their personal perspectives incline them to specialize in different content areas (e.g. group dynamics, human ecology), and to approach specific problems differently, both conceptually (e.g. system analysis, functional analysis) and methodologically (e.g. varying degrees of emphasis upon quantitative research). These predetermining interests and the

training received may condition the type of medical department in which a particular sociologist is employed. They may also condition how acceptable he is to medical colleagues.

The content of what a sociologist teaches may vary with the medical department with which he is associated. Emphasis upon demography and population characteristics relative to illness is more compatible with the course content of departments of social and preventive medicine than stressing a "social system theory" perspective which is more in keeping with psychiatric concepts. The latter approach is recommended by Straus²⁵ at the University of Kentucky, whereas the former approach was followed by Anderson²⁶ at the University of Western Ontario.

Instruction in medical sociology at the University of Saskatchewan attempts to fuse these two conceptual approaches. This situation has arisen partly because not only medical students but also nurses and psychiatric residents are being taught. Within the medical curriculum the amount of time allotted for teaching either contracts or expands the content of a course and the number of concepts an instructor may deem most appropriate for a particular audience. In the six Canadian medical schools in which sociology is taught, the time allotted in the curriculum varies from three hours in one medical school to 64 hours (27 by the sociologist alone, 37 hours of joint teaching with other department members) at the University of Saskatchewan. In the first institution concepts of the family and ethnicity are discussed. The topics presented in this department are outlined below.

MEDICAL SOCIOLOGY INSTRUCTION AT THE UNIVERSITY OF SASKATCHEWAN

The job specifications for the position of a sociologist on the faculty of the Department of Social and Preventive Medicine were contained in the recommendations for the structure and composition of the department in 1954 by Acker and Roemer²⁷ and in 1955 by Terris.²⁸ The sociologist would be given a full-time appointment and should engage actively in the teaching and research programs of this department. The principles of sociology were conceived to be in harmony with the concepts of social medicine since both were concerned with (1) group phenomena and (2) "the interrelationships of society and medicine".²⁹ The recommendations of Acker and Roemer³⁰ are cited below:

"*Medical sociology.*—The social environment, insofar as it contributes to health. The structure of the community, the family and social class. Housing, nutrition and food, industrialization, urbanization and rurality, and their health implications. Income levels and its health implications. Religion and mythology, educational level, mobility and migration."³⁰

The Department of Social and Preventive Medicine was established in the fall of 1958. Robertson³¹

has described elsewhere the organization of the department. Attention therefore will be focused upon the teaching functions of the sociologist who was appointed in 1959.

1. *First year.*—Freshmen medical students, the majority of whom have had no liberal arts courses in sociology, are introduced to the concepts of (1) society, (2) group, (3) culture, (4) social system and (5) role. During the five classroom hours each of these concepts is discussed with appropriate medical illustrations.

To overcome the professional "language barrier" between teacher and student, concepts are presented simply and devoid of specialized sociological terms.

2. *Second year.*—Owing to a recent reorganization of the curriculum for second-year students, the time allotted for medical sociology will increase from five hours this year to ten hours during the next academic year. Consequently, it will be possible to present additional sociological concepts and their relationship to health concepts and the prevalence of disease. The course will cover the following topics: (1) review of concepts presented during the previous year; (2) methodology; (3) analysis of the health team as a group; (4) overview of the community and ecological concepts; (5) the family; (6) patterns of child-rearing; (7) sex differences; (8) the aged; (9) social class; (10) ethnicity; (11) religion; (12) voluntary health associations; (13) the role of the patient; (14) social concept of pain; (15) career lines of physicians—student, intern, general practitioner and specialist; (16) the doctor-patient relationship; (17) patterns of hospital utilization, and (18) the social structure of the hospital.

Each of the above topics will be illustrated by appropriate studies. For example, the general concepts and implications of social class for group behaviour will be discussed. Illustrations concerning health will be drawn from: (1) Hollingshead and Redlich's study of the relationship of social class and mental illness;³² (2) the extensive findings in the reports of the Registrar General in Great Britain which relate class to morbidity and mortality rates;³³ (3) Koos' studies of Regionville and Metropolis which focus upon the different health attitudes and levels of medical knowledge by class background;³⁴⁻³⁵ (4) Deasy's report of class and participation in a poliomyelitis vaccine trial,³⁶ and (5) the results from continuing studies in Saskatchewan as the data become available.

These topics have been selected because they help medical students to understand health problems, and because the concepts and data complement the curriculum of this department. The discussion of patterns of group interaction, using the health team as an illustration, precedes the third-year seminars on the roles of the social worker, the public health nurse, the general practitioner and the "public health team". The analysis of numerous social variables (e.g. family, class and ethnicity)

provides a springboard for the Third Year Project and for the preceptorship reports which third-year students are required to present.

3. *Third year.*—The third-year course presented by this department can be divided into three general parts: (1) lectures and seminars on the organization of health services, principles and types of medical care, the roles of the members of the health team, occupational health and hospital organization; (2) findings by groups, of students on selected topics for analysis and, under the guidance of staff tutors, presented to the class in what is called the Third Year Project;³⁷ and (3) a required two-week preceptorship in general practice taken by students during the summer recess at the end of the third year. Slightly over two-fifths of the third-year schedule is devoted to lectures given by specific staff members. Several faculty members (including the sociologist) participate in the seminars. Each student group working on a project is tutored by a faculty member from this department and one from an appropriate clinical department.

The Third Year Project reports which deal with specific diseases focus on general patterns of incidence and prevalence, social variables, specific preventive measures, the roles of various health personnel, and an assessment of the methodology used by the authors of research articles which have been studied. In connection with the last point, several seminars on research methodology are scheduled for next year. Such preparation is deemed crucial, not only as a basis for the students' projects, but also in view of the findings of O. B. Ross, Jr. and others.³⁸ Ross concluded from a study of 100 randomly selected articles dealing with the testing of medical procedures and therapeutic programs that only 27% of the studies had adequate control groups. One objective, then, of the sociologist's participation in these seminars will be not only to discuss appropriate research design, but to develop in the students the ability to criticize medical reports objectively.

4. *Fourth year.*—Fourth-year students attend one seminar per week which is sponsored by this department. The sociologist currently participates with other staff members in seven seminars in which assessment is made of (1) the preceptorship reports and (2) problems dealing with social security, child welfare, and the aged.

5. *Other teaching activities.*—In addition to instructing medical students, lectures and seminars on medical sociology are presented to residents and nurses. On the invitation of the head of the department of psychiatry, a series of 12 seminars was given last year to psychiatric residents.

Twice a year 16 lectures are given to students of the Centralized Teaching Program for Nursing Students in Saskatchewan. Under the auspices of this program, nursing diploma students from various hospital schools in the province attend classes for four months at the University of Saskatchewan before returning to their respective schools to com-

plete their training. Several lectures are also given to students in nursing administration and in public health nursing.

RESEARCH ACTIVITIES

Research constitutes an integral phase of this department's activities. In the area of medical sociology extensive research locally is mandatory since it is necessary to compile data upon sociological trends which have been observed elsewhere and also to explore a province which is unique in the diversity of its population and in the provision of health services. While an extensive research program is contemplated for the future, the sociologist is currently collaborating with others on four studies.

1. *Patterns of medical care in Wheatville.*—In collaboration with the staff of the Center for Community Studies, University of Saskatchewan, a study of an ethnically diverse, southeastern community in Saskatchewan has been started. Information will be collected, by means of a household survey, on (1) perception of health personnel and beliefs about medicine, (2) morbidity rates, and (3) the utilization of health personnel and facilities. To date, only the records of the public health nurse and the local physicians have been studied.

2. *Analysis of medical students.*—Under the sponsorship of the College of Medicine, a study of medical students was begun in the summer of 1960. The first phase of this study is nearing completion. The students' records for a seven-year period have been analyzed (1) to compare the students with other types of students and the general population, and (2) to devise a multiple coefficient of correlation testing the relationship between the characteristics of the students (e.g. social background, aptitude tests, pre-medical grades) and relative academic success in this medical school. In the future this study will be extended to an analysis of the variables which enter into the selection or rejection of medicine as a career.

3. *Distribution of nursing personnel.*—All hospitals and nursing homes in Saskatchewan have been asked to report on (1) number and type of nursing personnel employed during 1960, (2) turnover of personnel, and (3) perceived "need" for additional workers. Personnel profiles and turnover rates will be calculated for each hospital. The above variables will be related to (1) location, (2) number of beds and per cent occupancy, and (3) trends of hospitalization.

4. *Hospitalization trends in Saskatchewan.*—Preliminary work has been started on a study of hospitalization rates in this province. The Saskatchewan Hospital Services Plan, which has been in operation for 15 years, has very complete hospitalization data. Trends in hospitalization rates for areas and by specific diseases will be related to: (1) demographic characteristics, such as ethnicity, family size and income; (2) characteristics of hospi-

tals, such as location and size; and (3) characteristics of physicians, such as origin, specialty and location.

CONCLUDING REMARKS

The embryo of medical sociology is growing rapidly and the position of medical sociologists is analogous to the one which physical scientists experienced when they were initially being enlisted as medical faculty members several decades ago. The utility of the concepts and methods of sociology has been demonstrated in other areas. This is not yet the case in medicine. To date there are too many crucial health problems which should be explored further but which have not been examined in depth by sociologists. However, considering the relatively short history of this specialty, it is remarkable that so much information has already been synthesized.

In the course of the next few decades, it is legitimate to assume that medical sociologists, like their predecessors the physical scientists, will make a genuine and lasting contribution to medical teaching and research. The "great expectations" which McIntire held in 1894 for medical sociology have been partly realized. Time holds the verdict for their fruition.

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THE TEACHING OF DERMATOLOGY TO UNDERGRADUATES AT THE UNIVERSITY OF BRITISH COLUMBIA I. GENERAL ORGANIZATIONAL PRINCIPLES

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"THE ESTABLISHMENT of a Faculty of Medicine at the University of British Columbia (1950) called for a critical assessment of the objectives of the program for teaching undergraduate dermatology, and required a blueprint of the best means of attaining these.

"Provision of good dermatological care by the general practitioner for the family group in the community was considered to be the primary purpose of the program, and therefore the first essential of the university teaching has been to provide the future family physician with the knowledge necessary for him to manage with skill and economy the common dermatoses of the family group—an objective with an apparent illusion of restrictiveness which, however, has a broad foundation based upon integration throughout the entire period of undergraduate instruction with all the scientific, clinical and humanitarian influences that constitute the 'whole' of the undergraduate experience.

"The term 'confusion' in general best describes the present management of dermatoses at the family level. This unfortunate state is the product of a number of factors, some controllable locally at the undergraduate level and others requiring a broader corrective approach. Among these factors the following play a prominent role: the casual selection of teachers, a lack of the use of effective modern methods of pedagogy, the 'curricular astigmatic' influence of specialized dermatological interest, the cluttered maze of nomenclature, textbook 'bric-a-brac' and commercialized advertising pressures.

"A blueprint of fundamental considerations is presented for the development of teaching undergraduate dermatology, based upon the family-general-practitioner unit of medical care which incorporates in its design the lineaments of the following primary features: the community incidence of common family dermatoses,

Osler's 'observation-analysis-good-methods' approach, the Descartes rule for textbook assessment, clinical correlation with the basic sciences, and clinical association with the other specialty fields of medicine and surgery. It is anticipated that the implementation of this teaching 'blueprint' will reduce the present high incidence of 'dermatitis confusiformis' in British Columbia."¹

THIS STATEMENT summarized the position of the university program for teaching undergraduate dermatology in 1956. The purpose of the group of four papers presented in this issue of the Journal is to indicate how certain of the features of the original blueprint have been and are being implemented. This presentation deals with basic organizational considerations, essential records, statistics and standards, clinical photography and dermal histopathology. It is intended that, as the program continues to develop, reports will be made on other aspects of the teaching including, particularly, integration with the basic sciences, a survey of the community incidence of common dermatoses of the family group, teaching methods and curriculum content, and a "Basic Formulary".

THREE BASIC ORGANIZATIONAL PRINCIPLES

At the University of British Columbia in the Faculty of Medicine the teaching of dermatology to undergraduate students is based upon three essential principles. These are designed to achieve the primary purpose of the teaching program, which is "to provide the future family physician with the knowledge necessary for him to manage with skill and economy the common dermatoses of the family group". These are the organizational principles:

1. The teaching of undergraduate dermatology shall be a function of the Department of Medicine.
2. The teaching of undergraduate dermatology shall be integrated with the teaching of the basic sciences and with that of the other clinical subjects.
3. The teaching of undergraduate dermatology shall be the responsibility primarily of a group of dermatologists within the Department of Medicine, each with a specific sphere of administrative, integrative and clinical teaching interest.

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It is proposed to consider briefly the application of each of these principles to the university program. On their foundation the teaching has changed from a "bare bones", compartmentalized learning experience of 13 hours to one of 60 hours, 24 of which are integrated with the basic sciences and the other clinical fields. The experience appears to be one of mutual satisfaction for both student and teacher; and it is now becoming evident that recent graduates who are in family practice in British Columbia are in fact managing the common dermatoses with skill and economy and indeed with considerable enthusiasm and with a sense of confident achievement.

Through affiliation arrangements between the university and the Vancouver General Hospital the clinical experience of the student takes place in the outpatient department. The extensive, efficient resources of the hospital are made readily available for teaching purposes by the Board of Trustees and the administration. The medical administration, the Department of Nursing, the Pharmacy, and the Department of Medical Records of the hospital contribute in no small degree to the success of the teaching program in dermatology. The integration between the university and the hospital is such that the contribution of each in the teaching effort is difficult to separate. This is evident particularly in the field of records and statistics.

The Teaching of Undergraduate Dermatology as a Function of the Department of Medicine

The administrative arrangement at the University of British Columbia whereby dermatology is a part of the Department of Medicine has been a most satisfactory one, providing as it does a sound foundation for teaching undergraduate dermatology.

Beginning with physical diagnosis in the second year and continuing during the third and fourth year, the student is taught that:

1. Dermatology is "cutaneous medicine".
2. Dermatology (cutaneous medicine) is a part of an indivisible whole, which is the field of clinical medicine.
3. Dermatology (cutaneous medicine) as a part of the field of medicine is not compartmentalized but is rather an essential element diffused throughout the entire length and breadth of medicine.

This self-evident, axiomatic concept of the relationship between dermatology and medicine applied administratively and curricularly throughout the undergraduate learning period leaves the student on graduation with the clear understanding that the two clinical fields are, in fact, inseparably bound together, a relationship which he increasingly substantiates with increasing experience in family practice.

Because the patient's skin is a "mirror" constantly reflecting the state of health or ill-health of the underlying tissues and organs, it is an inescapable clinical fact that every patient presented by

every teacher, be he internist or dermatologist, has a visual dermatological component that may have significance in the over-all assessment of the patient's presenting problem. It is a rare clinical experience not to see a patient with at least one dermatosis and for most adults five or six entities are usually visible. Granted that pigmented nevi, minimal ichthyosis, hemangiomas of the senile type, onychophagy, mild acrocyanosis or cutis marmorata and ephelides on the dorsum of the hands may not have significance in the particular patient's problem under consideration, but then again these apparent cutaneous minutiae may be of great, though of not immediately evident, importance.

This being so, it is fairly obvious that not only every dermatologist, but most important of all, every internist, is indeed faced in every teaching situation, in every patient, with cutaneous medicine (dermatology). Where, as is often the case, the two clinical fields in university teaching are zoned off, much of the valuable opportunity to correlate medicine and dermatology before the eyes of the student is lost. The hazard of his possible loss of valuable undergraduate orientation gives forceful support to a policy of the closest possible organizational association of medicine and dermatology. One of the finest teaching contributions in the field of dermatology which a faculty of medicine can give to a student is that provided in an outpatient department or around a bedside by an internist within the context of internal medicine and in its intellectual environment. This seems to be one of the soundest undergraduate teaching means of overcoming the prevalent "externist" concept of the role of dermatology.

Integration of the Teaching of Undergraduate Dermatology with the Teaching of the Basic Sciences and Other Clinical Subjects

The structural and functional nature of the skin is such that integrative teaching with the basic sciences and the other clinical fields is easier than in other special fields in medicine. Not a single basic science can be named—anatomy, biochemistry, physiology, microbiology, pathology, pharmacology, immunology and allergy, mycology and parasitology, genetics, anthropology, behavioural science and medical ecology—that cannot be demonstrated to the student to have an important association with dermatology and consequently with the care of a patient's cutaneous problem. Teaching examples often dramatic in effect can easily be selected in any or preferably all of these basic sciences—examples which portray vividly the dynamics of the pathogenesis of a common dermatosis, and may by integrative teaching extend the scope of the dermatosis to the outer boundaries of the realm of medical science.

Because the skin is constantly reflecting in myriad ways the underlying health or ill-health of almost every tissue or organ, it is exceedingly easy,

as with the basic sciences, to integrate the teaching of dermatology with that of the other clinical fields. The choice of teaching examples is so great that the selection of the nature and number of these becomes a pleasant matter of mutual arrangement between the teacher in the clinical field with which integrative teaching is planned and the dermatologist.

The main purpose of this paper being to present organizational principles only, it does not deal with the detail of their application. However, a few examples of clinical integration are cited to indicate the general character of this association as it exists at the University of British Columbia.

Medicine.—A sequence of cutaneous clinical entities demonstrated where possible with colour photography, from 17 areas of the skin, extending from the top of the head to the tip of the toes, each of which is clearly associated with underlying systemic disease; the pathogenesis of nodose lesions of the leg; the classification of cutaneous hyperpigmentation.

Surgery.—A sequence of cutaneous situations with important surgical associations; acute abdominal problems with diagnostically significant, unobtrusive, cutaneous findings and silent, developing abdominal malignancy with cutaneous evidence as the first presenting sign; the differential diagnosis of leg ulcer.

Pediatrics.—Infant eczema; skin infections and infestations (integrated with preventive medicine, bacteriology and parasitology).

Obstetrics and Gynecology.—Chronic pruritus vulvae.

Psychiatry.—Common "cutaneous minutiae" reflecting underlying tension, anxiety, compulsions, phobias; screened student observation of a psychiatrist demonstrating factors in the psychopathogenesis of neurodermatitis.

Preventive Medicine.—Common dermatoses with preventable (morbidity, anxiety, cost) factors.

Integration, a co-operative agreement between two or more teaching groups in the Faculty of Medicine for the purpose of correlating their respective teaching interests, makes it possible to demonstrate to the student how, even with a relatively few selected common dermatological situations, the full range of the complexity of the human organism may be viewed.

The Teaching of Undergraduate Dermatology as the Responsibility Primarily of a Group of Dermatologists within the Department of Medicine Each with a Specific Sphere of Administrative, Integrative and Clinical Teaching Interest

To achieve the primary purpose of the undergraduate teaching program, success depends upon a fairly onerous but interesting amount of preparatory time devoted to planning, organization, integration detail, visual aids, demonstrations and summary student notes. To make the fullest and

most effective use of the resources of the Faculty of Medicine in implementing the first and second organizational principles it is essential to have, as members of the Department of Medicine, a small group of carefully selected dermatologists, each with a sense of dedication and an appreciation of the privilege of participating individually and as part of a group in the high calling of the art of teaching in the university.

The group, closely knit by common purpose and interest, meeting at frequent intervals, gives co-ordinated direction to the teaching program, studying and deciding upon the essential elements of the lecture, demonstration and clinic contents; using the same nomenclature (American Medical Association Standard Nomenclature) and terminology; agreeing jointly upon methods and techniques of effective presentation of this content; setting standards; examining relevant statistical data, and reviewing new clinical and microphotographic material. The general effect of this organizational approach is to give a unity to the program and a sense of satisfaction to each dermatologist in the group.

In addition to the co-ordinated group effort, each dermatologist has a specific administrative zone of responsibility, a basic science and clinical integrative sphere of activity and a dermatological clinical area of special interest. For example, dermatologist A has administrative responsibility for all matters related to records, statistics and teaching standards, has the task of integrating dermatology and physiology, and has a special clinical interest in the systemic manifestations of cutaneous disease. Dermatologist B is in charge of visual aids and, in particular, the development of the clinical photographic collection, is responsible for integration with microbiology, mycology and parasitology and has a special clinical interest in the dermatoses related to these basic sciences. Dermatologist C is responsible for the slide collection of dermatohistopathology, for integration with anatomy, pathology, obstetrics, gynecology, and pediatrics, along with a special clinical interest in cutaneous neoplasia.

CONCLUSION

This presentation, dealing as it does with the general organizational considerations upon which the University of British Columbia program is developing, does not go into the full detail of the program but rather is restricted to the three basic principles upon which it is founded, giving a few examples of how and why these principles are being applied. The structure of the program is in a state of active development and is not likely to attain a relatively completed form for another three years. Suffice it to say that the final-year student is now better prepared to meet the common dermatological problems of the family group than was the student who graduated from the University of British Columbia five years ago. Not only can a

sense of evident pleasure in the study of dermatology on the part of the student be observed but also a sense of teaching achievement and of having contributed toward improved community health and welfare as it applies to the skin be noted on the part of the teaching dermatologists. It should not be inferred that there is anything sacrosanct about the University of British Columbia program which is developing on the organizational basis outlined in this presentation. It is recognized that the ultimate aim of all good dermatological teaching

can be attained by many means other than the approach presented herein.

Appreciative acknowledgment is made to Dr. R. B. Kerr, Professor and Head, Department of Medicine, University of British Columbia, and Head, Department of Medicine, Vancouver General Hospital, for his sympathetic interest, advice and support throughout the development of the program described in this group of four papers.

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THE TEACHING OF DERMATOLOGY TO UNDERGRADUATES AT THE UNIVERSITY OF BRITISH COLUMBIA II. BASIC RECORDS, STATISTICS AND STANDARDS

WILLIAM D. STEWART, M.D., F.R.C.P.[C],*
Vancouver, B.C.

RECORDS ARE clearly an essential basis of any well-organized teaching department. In order to assess the trend and the characteristics of a disease as it appears in a given area, accurate records from that area must be utilized. These records, kept over a period of years, reveal peculiarities of diseases occurring locally. In any area, for example, its characteristic climatologic changes strongly affect the course and type of cutaneous disease seen. This sort of information, culled from carefully compiled statistics, when compared with those obtained from other areas, can help to throw new light on obscure aspects of disease. Statistics of disease incidence are only satisfactory when based on accurate, well recorded clinical observations.

The records system maintained by the Department of Medicine (Dermatology) of the University of British Columbia, with the Vancouver General Hospital, must be considered in the light of the various functions performed by both. As the teaching program is carried out with the aid and facilities of the Vancouver General Hospital, some of the activities of the Department of Medicine (Dermatology), the University of British Columbia, are inseparably intertwined with that hospital. Also as the program is as yet new, some of the functions of the department remain for future development.

Present functions of the Department of Medicine (Dermatology) include:

1. Teaching undergraduate students in dermatology, as part of the medical school curriculum.

2. Diagnosis and treatment of outpatients and dermatological inpatients.

3. Provision of consulting services to other specialties for patients attending the outpatient department, as well as inpatients hospitalized for non-dermatological disease.

In the future, its services to the medical community may include:

4. Collection of information and statistics on the characteristics of cutaneous disease occurring in British Columbia.

5. Provision of facilities for expensive or complex procedures or laboratory studies not otherwise available locally, as medicine evolves further.

6. Assistance and organization in the field of postgraduate teaching (dermatology).

IMPORTANCE OF RECORDS

Without accurate records, clinical research is virtually impossible; with good records, wide vistas in the field of investigative dermatology are opened. Changing trends in chronic diseases become apparent, and unusual symptomatology that broadens our concept of disease is often shown to be a part of the picture. For example, the fairly recent concept of the exudative discoid and lichenoid chronic dermatosis of Sulzberger and Garbe was formed only by careful observation and rather extensive and careful recording of these observations over a period of years. In this way the completely different phases of this interesting disease were correlated and deduced to form one clinical entity, previously undescribed.¹

Methods of therapy, which may be suggested by logic or clinical observation, or are simply empirical, are assessed accurately only by careful observation, recording, and then comparison with statistically significant numbers of records on the natural history of the untreated disease. A comparison also of methods of therapy, really valuable when made in a double-blind study, is only of value when dependable records are kept. Skilled and valuable clinical observations in the past have been lost to the teaching program because of incomplete re-

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cording of these facts. Hurried and inadequately reported details of a patient's visits scrawled illegibly on a hospital outpatient record are a waste of both writer's and reader's time.

METHOD OF RECORD KEEPING

For all of these reasons, and to enable the department to extract some meaningful information from outpatient visits, an organized system of record keeping was set up in the fall of 1954. It has changed little since its inception and it is hoped that it will be increasingly useful in the years to come. It includes a system of records divided into two parts; one part deals with patient visits and the other with the dermatoses.

1. Patient Visit Records

The record distinguishes new outpatient visits, ordinarily for examination and treatment, from new inpatient visits, ordinarily for consultations on patients who are in the hospital for another reason, and both from the follow-up visits of patients in either of these two categories.

Outpatients with cutaneous problems are all seen and their records are maintained by members of the attending staff of the Vancouver General Hospital. Neither medical students nor the house staff have the responsibility of treating these patients, although both new and interesting patients are demonstrated to them, and they attend clinics. This is also true of some of the other specialty clinics in the hospital.

In 1959, it was decided that the patients new to the dermatology clinic were not given adequate time for a thorough dermatological workup. An afternoon clinic was set up at which all new patients, and only new patients, were to be examined and interviewed. New patient data, recorded at the new patient clinic on the sheet shown in Fig. 1, were additional to the information on the patient's chart. During this afternoon once weekly, an average of eight new patients are now seen, interviewed and examined by one attending physician in comparative leisure compared with the hurly-burly of the usual morning clinic. This additional afternoon clinic has proved well worth the time spent in terms of better care of patients and more adequate initial interviews and information.

Most outpatients are seen first in the general medical clinic, where they have a medical interview, examination and laboratory investigation, and are then referred to the dermatology clinic if this is indicated. Often, however, there is an urgent dermatological problem or the need for care is apparently limited only to the skin, and the patient arrives at the dermatology clinic unexamined, in which case it is the responsibility of the dermatologist to see that undiagnosed disease of other systems is not overlooked, and that all necessary laboratory work is ordered, pursuant to this objective.

THE VANCOUVER GENERAL HOSPITAL DERMATOLOGY WORKSHEET

MONTH 11th FEB., 19 60

PHYSICIAN M. JOHNSTON

AREA	Task
O.P.D.	<input checked="" type="checkbox"/>
A-3	<input type="checkbox"/>
A-4	<input type="checkbox"/>
A-5	<input type="checkbox"/>
Other Areas	<input type="checkbox"/>

No.	UNIT No.	AGE		DIAGNOSIS
		Male	Female	
1.	ST 379454		66	KERATOSIS SEBORRHEICA
2.				DERMATITIS VENENATA
3.				NEVUS PIGMENTOSA
4.	JO 345984	39		NEURODERMATITIS CIRCUMSCRIPTUM
5.				VERRUCA VULGARIS
6.				IMPETIGO
7.	BO 379463		72	NEURODERMATITIS CIRCUMSCRIPTUM
8.				DERMATITIS VENENATA
9.	MC 1 273881	40		IMPETIGO CONTAGIOSUM
10.	DE G 379485	20		VERRUCA ACCUMINATA
11.	HO 379486	41		VERRUCA ACCUMINATA
12.	MO 114254	40		DERMATITIS SEBORRHEICA
13.				POMPHOLYX
14.	RA 169702		68	DERMATITIS HYPOSTATICA
15.				
16.				
17.				
18.				
TOTALS		5	3	

Fig. 1

2. Patients' Repeat Visit Records

The repeat visits by patients in the regular dermatological clinic are recorded on form sheets as illustrated in Fig. 2. In this way, a continuing record can be kept of statistics relevant to follow-up visits, such as the period of therapy after initiation of a new treatment. It can be determined if a new therapy or a modification of an old method has been successful in reducing the number of repeat visits usually made for treatment of a specific dermatosis. The chart number, sex of patient and diagnosis are included. If a new diagnosis is made on a repeat patient, it is recorded as a new diagnosis.

On this form a record of biopsies and operations performed is now being kept, and it may include other information regarding methods of therapy in the future.

3. Classification of Dermatoses

The second part of the record system includes the classification by diseases. In agreement with findings of the committees on nomenclature of various bodies such as the American Academy of Dermatology, the Standard Nomenclature of Diseases and Operations of the American Medical Association is used. This is the most effective method of categorizing diseases at present available. A standardized system is essential and this one has fewer faults than some others in existence. It

THE VANCOUVER GENERAL HOSPITAL
DERMATOLOGY WORKSHEET

NORTH

MARCH 1st

1960

PHYSICIAN

STEWART

DAILY SHEET

AREA

Tick

O.P.D.

A-3

A-4

A-5

Other areas

No.	UNIT No.	A	C	E	DIAGNOSIS
		Male	Female		
1.	138307		✓		LUPUS ERYTHEMATOSUS (CHRONIC)
2.	379372	✓			NEUROTIC EXCORIATIONS
3.	379523		✓		DERMATITIS VENENATA (P.I.)
4.	379559	✓			NUMMULAR ECZEMA
5.	349417	✓			DERMATITIS VENENATA (ALLERGIC)
6.	5449		✓		ERYTHEMA MULTIFORME BULLOSUM
7.	379560	✓			FOR BIOPSY
8.	96868		✓		PARONYCHIA
9.	141515	✓			INTERTRIGO
10.	379506	✓			PRURITUS (CAUSE UNDETERMINED)
11.	333110		✓		ERYTHEMA NODOSUM
12.	309874		✓		PSORIASIS
13.	4568	✓			DERMATITIS HYPOSTATICA
14.					
15.					
16.					
17.					
18.					
TOTALS		7	6		

Fig. 2

classifies diseases on a numerical basis based on: (1) anatomical and (2) etiological factors.

This system does little to lessen the verbosity and unwieldiness of dermatological terminology, but it does do away with synonyms; it endeavours to establish one name for a disease entity, with subheadings where this is of importance. It is desirable to institute a regular system of revision with an efficient way of keeping it up to date as new entities arise—keratoacanthoma, for example; and names should be modified where a new concept of disease reveals the original name inadequate, as in urticaria pigmentosa. A problem in accuracy arises, too, when the variety of diseases diagnosed as eczema may be so numerous as to be impractical unless the persons utilizing the diagnostic term in question agree to limit its use to a specific entity within the broad scope of the word eczema. Despite these and some other shortcomings, the A.M.A. Standard Nomenclature is the most satisfactory one available at present. The greatest chance of success for the ultimate ideal of a simple and specific terminology lies in the use and gradual modification of this classification, and it behoves dermatologists to support those international committees working to modify and improve this useful system of nomenclature. Perhaps a committee on nomenclature set up by the Canadian Dermatological Association would be of assistance in the achievement of these goals.

In the Subdepartment of Dermatology of the Vancouver General Hospital, the new patients and the dermatoses diagnosed are recorded on 3" x 5" index cards (Fig. 3) along with the patient's name, sex, age, hospital number and the name of the dermatologist making the diagnosis. The cards are filed under that disease entity in numerical order according to the number assigned to that disease by the A.M.A. Standard Nomenclature. Interestingly enough, even in a system of standardized nomenclature, patterns of individual "favourite diagnoses" appear and over a period of years it will be most informative to an individual dermatologist to review those patients presenting a clinical entity he diagnoses frequently and about which he has his own particular concept. This may often be an entity not clearly defined (neurotic excoriations, for example) and to determine the course, natural history and eventual outcome of the disease in these patients will be valuable to the attending physician.

III-190 DERMATITIS SEBORRHEICA						
UNIT No	LAST NAME OF PATIENT	DATE of DIAG		AGE		PHYSICIAN
		INPAT.	OUTPAT.	MALE	FEMALE	
330491	DE	S.59		51		STEWART
147467	JO		S.59	40		KANEE
318472	CO		O.59	39		MITCHELL
352884	PA		O.59	32		STEWART
364717	TO		O.59	19		KANEE
206153	TI		O.59		41	MITCHELL
177555	BR		N.59		69	STEWART
348899	MA		N.59		29	STEWART
259738	WA		D.59	46		KANEE

Fig. 3

REPRESENTATIVE STATISTICS

As an indication of the teaching material available at the outpatient department of the Vancouver General Hospital where the university clinical teaching program in dermatology is carried out, 2312 patients, new and old, were seen in 1959. Of these, 2207 were outpatient visits and 105 were inpatient consultations; 281 new patients were seen, an average of slightly less than eight each week. The ages of these patients ranged from 13 to 97 years, the largest proportion falling in the decade from 51 to 60 years of age. The next largest group by decades was that between the ages of 41 and 50 years.

Diseases diagnosed most commonly were much the same as reported elsewhere in North America. A few representative diseases for the year 1959 were recorded as follows:

<i>Dermatosis</i>	<i>Number of new patients</i>
Dermatitis venenata.....	62
Dermatitis seborrheica.....	38
Neurodermatitis circumscripta.....	33
Neurodermatitis disseminata.....	31
Psoriasis.....	28
Dermatitis medicamentosa.....	16
Herpes zoster.....	12
Rosacea.....	8
Pityriasis versicolor.....	5
Lichen planus.....	4
Scleroderma—localized.....	1
Scleroderma—generalized progressive.....	1
Porphyria.....	1
Pemphigus vulgaris.....	1

These data are listed only as figures representative of the experience at our clinic. They are drawn from a selected group of patients, as in any outpatient department, and thus cannot be said to be representative of the incidence of these dermatoses among the general population of Vancouver.

CASE HISTORIES

An attempt is being made to standardize the initial dermatological history recorded in the patient's chart. The general form is that taught to the medical students in the outpatient department. The form (Fig. 4) is considered only as an outline,

be not only useful but also used. If their information is not easily obtained, they will be wasted to all but the individual who made them. Outpatients are seen by several physicians, each one of whom must depend entirely upon the patient's record when he wishes to evaluate that patient's progress in another field. Often the other physician's opinion is recorded in unfamiliar specialized words that amount to a sort of medical shorthand often placed in a remote part of a thick chart, frustrating even the most energetic searcher after factual information. With this in mind, a standardized system of diagrams of body, face and extremities of such a size that they can be incorporated into the chart to accompany short progress notes, is being considered; this will illustrate the course of the dermatosis as it changes under therapy from visit to visit. These diagrams resemble those utilized by the medical students in recording the clinical features of the common and important dermatoses seen by them. Thus an effective unity between teaching methodology and clinical records will be maintained.

The system is not static but is constantly undergoing revisions and additions, and with these changes it is felt that progress is being made toward an eventual practical, efficient, but above all useful system of records and statistics with high standards, which will have a valuable influence upon the teaching of dermatology to undergraduates

OUTLINE OF DERMATOLOGICAL HISTORY

(Significant Points in Each Individual Case to be Developed Further)

1. *Present Dermatological Illness (from first onset)*
 - A. Onset —e.g. insidious, sudden, febrile. Apparent cause.
 - B. Course—e.g. progressive, intermittent, seasonal, precipitating factors.
2. *Past Dermatological Illnesses*

Previous allergic cutaneous reactions, infantile eczema, reaction to sunlight, recurrent dermatologic illnesses, metal sensitivity, etc. Negative findings important.
3. *General Medical History*
 - A. Past —General health, specific hospitalizations if significant, recurrent or chronic illness.
 - B. Current —General health, specific complaints if significant. All recent illnesses concurrent with dermatologic complaints.
 - C. Medications—All current medications prescribed or self-administered, both topical and systemic. Previous reactions to medication, proven or suspected.
4. *Family History*
 - A. Dermatologic disease previously occurring in siblings, parents, predecessors.
 - B. Dermatologic disease currently occurring in family.

Fig. 4

with important aspects in the individual case to be followed as the examiner sees fit and unrewarding questions left without further pursuit. If histories are consistently written in this way by members of the subdepartment of dermatology, the house staff and non-dermatologists in the hospital will begin to learn the pattern and utilize it, with fuller dermatological information resulting.

It has been said that use is the only justification for making or keeping records. Once good records have been attained, these records, upon which so much valuable professional time is spent, should

ates in the Department of Medicine (Dermatology) of the University of British Columbia.

Mrs. Virginia D. Peterkin, R.R.L., Chief Medical Records Librarian, and the staff of the Medical Records Department, The Vancouver General Hospital, have given invaluable assistance in setting up the record system described, and have continued to be most helpful in advising upon problems encountered.

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THE TEACHING OF DERMATOLOGY TO UNDERGRADUATES AT THE UNIVERSITY OF BRITISH COLUMBIA

III. ROLE OF PHOTOGRAPHY

ORGANIZATION OF THE DERMATOLOGICAL TEACHING COLLECTION OF PHOTOGRAPHIC SLIDES

JOHN C. MITCHELL, M.D., M.R.C.P.(Lond.),*
Vancouver, B.C.

*"The whole art of medicine is in observation,—
educate the eye to see."* Osler.

VISUAL AIDS are generally useful in medical teaching and are of special value in clinical dermatology.

The total time allotted for the undergraduate teaching of dermatology is approximately 60 hours. The dilemma of the lecturer, during 12 didactic lectures, and especially of the outpatient teacher, during 15 hours of clinical demonstration, is to organize an adequate amount of exposure to some 74 common and important dermatoses. The role of clinical photography is to supplement this clinical experience for the undergraduate student.

For the graduate student of dermatology and for record and research purposes, the clinical photograph has additional uses; it offers advantages which the "cutaneous word-picture" can rarely better. For the undergraduate student, every clinical photograph should "tell a story", should be of teaching quality, which implies technical excellence, and should come near to, although it can never replace, living cutaneous medicine. The clinical photograph for the undergraduate student is a clinical supplement and patient-substitute.

A dermatosis is gross cutaneous pathology. Student and dermatological teacher share an opportunity which is rarely enjoyed in any other clinical branch of medicine. They observe and interpret gross pathology.

These following extracts are from the mimeographed notes provided for clinical undergraduate students:

"PHYSICAL DIAGNOSIS: EXAMINATION OF THE SKIN

Visual Clinical Feast

Whereas in other clinical fields the student peeks and pries with assorted scopes and other ingenious physical devices into the orifices, passages, nooks and crannies of the body looking for visual diagnostic crumbs, in cutaneous medicine the student has a visual feast spread before his eyes.

The Cutaneous Mirror

'From the cradle to the grave' the patient's cutaneous mirror is reflecting in myriad ways the state of his health. With a full view of the entire skin surface in a bright light the precise physical features of the skin should be observed, and these visual facts ('hallmarks' not the 'herrings') transcribed into a precise word picture upon which the tentative differential diagnosis is based.

A Cutaneous 'Word' Picture

Use of the following outline of the sequence of the steps taken and of the terms used in describing the physical characteristics of the skin will reduce the high incidence of 'dermatitis confusiformis'.

This concept, followed by the diagnostic steps and terms which are outlined in the notes, is the basis for training of the undergraduate to the level of ability of practical management of the 74 common and important dermatoses.

In this teaching technique, emphasis is placed on the visual facts and their transcription into a descriptive word-picture, and these steps precede the taking of a history. This method is a special technique for teaching purposes, an exaggeration of the fact that visual recognition plays a part in the diagnostic clinical practice of the dermatologist; some disorders of the skin may be recognized at sight (certain examples of acne vulgaris, lichen planus or molluscum contagiosum, for example). The student is shown that careful history-taking and observation may be required to unravel the cause of an acneiform eruption, but the dermatologist has, from the time of his inspection of his patient, been observing the gross pathology.

An example of the role of the clinical photograph follows:

In a two-hour clinical demonstration given jointly by a surgeon and a dermatologist, the following notes are provided for fourth-year undergraduate students.

THEATRE CLINIC SURGERY AND DERMATOLOGY

Leg (Crural) Ulcers—Differential Diagnostic Outline

Common problem — 'cutaneous mirror' reflects breadth of differential possibilities—involves many factors—local and systemic—inherent and acquired—anatomical and physiological.

1. Vascular

- (a) *Arterial*—hypertension, arteriosclerosis, diabetes, thromboangiitis obliterans
- (b) *Venous*—ulcus hypostaticum, postphlebotic syndrome
- (c) *Small vessels*—Raynaud's syndrome, perniosis, livedo reticularis, acrocyanosis, erythrocausalgia
- (d) *Blood*—polycythemia, anemia (sickle cell, Mediterranean, spherocytic, splenic), Felty's syndrome, hypoproteinemia (Gaucher's disease)

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2. *Trauma*

- (a) *Physical*—gross or abrasive, insect bites, scratching, thermal, radiation
- (b) *Chemical*—primary irritation, allergic
- (c) *Bacteria*—staphylococcus, streptococcus

3. *Subdermal Disease*

- (a) *Muscle*—e.g. sclerosing fluid missed vein
- (b) *Pretibial hematoma* with secondary infection
- (c) *Bone*—osteomyelitis

4. *Systemic Infection*

- (a) *Tuberculosis*—erythema induratum
- (b) *Syphilis*—ulcerogummatous tertiary

5. *Drug Sensitivity*

Bromide and iodide

6. *Malignant Neoplasia*

- (a) *Local*—epidermoid carcinoma or sarcoma in chronic ulcer or old cicatrix
- (b) *Systemic*—malignant lymphoma (Hodgkin's, leukemia, lymphosarcoma), Kaposi's multiple hemorrhagic hemangioma

7. *Neurogenic*

- (a) *Neuropathic*—spinal cord or peripheral nerve injury or disease
- (b) *Compulsive Excoriation*
- (c) *Factitial* (self-induced) malingering or expiation.

In the foregoing type of presentation clinical photographs supplement the available clinical material and are of special value in demonstrating points which may be brought out in discussion.

Part of the magic of photography is that there is nothing like a judiciously timed burst of clinical colour for bringing to life a stuporous captive audience—a property valuable not only in undergraduate lecturing.

ORGANIZATION OF THE COLLECTION

Since the start of medical teaching in 1951, a collection of 1200 dermatological photographic slides has been assembled. This paper discusses the organization of this collection rather than technical aspects of photography. A plan was made for selection for teaching, for preparation of material and for organization of a slide file, and an outline of this plan is presented here.

Size of Slide Chosen

35 mm. slides had the advantage of light weight for transportation and a collection required a small filing cabinet. The advantages of $4\frac{1}{4}$ " x $3\frac{1}{4}$ " slides were considered to outweigh these points on two counts: $4\frac{1}{4}$ " x $3\frac{1}{4}$ " slides could be demonstrated on an x-ray viewing box to small groups of students when a projector was not available, and a student could review the collection alone.

Clinical Material

All patients who attended the teaching outpatient clinic at the Vancouver General Hospital

were briefly reviewed by one dermatologist, who selected patients for clinical demonstration and at the same time selected material for photography. Precedence was given to accumulation of slides of the 74 dermatoses taught to undergraduates.

Standard Terms for Photographic Views

The common difficulty experienced in communication to the photographer of the exact photographic views which were required was solved by the preparation of two reference books as follows: Photographs chosen for excellence of technique were copied from textbooks and a standard term selected for each view. One copy of this book was kept in the outpatient clinic, another in the photography department. By use of these standard terms in writing requisition forms, the photographer was made aware of the exact view required and uniformity was obtained.

Photographic Technique

Each dermatosis was photographed in three views, distant for orientation, mid, and close-up for detail. Technical details of lighting, distance and time were recorded by the photographer on the requisition form in order to obtain uniformity in follow-up and post-therapy views. A graphic camera was used. The ground-glass screen showed the view which was to appear in the photograph. The advantage of this camera was versatility; a disadvantage was that fine-detail close-up views were not possible. A reflex 35 mm. camera with bellows was used for close detail.

Black-white photographs of each dermatosis were taken because prints made later in black-white from colour negatives were less satisfactory. Two 35 mm. cameras were necessary for black-white and colour photographs, but only one graphic camera was required for both. A wide-angle lens was necessary for a photograph of a patient lying in bed. A head-rest was essential for consistent quality of fine-detail close-up views.

Green operating-room sheets were used for draping. Sheets of green, black and white paper were used for background; these were pulled down from a roll and cut off as they became dirty. By pulling the paper forward and by having the patient stand on the paper, an unsightly gap in background at the ankles was avoided. Coloured paper was more convenient than painted wood for use as a background. The latter became dirty and discoloured by grease spots from the hair. Unnecessary detail and irrelevant distracting backgrounds were avoided. Lesions were cleansed of medication in the clinic whenever possible. Biopsies were performed after, rather than before, photography. The photographer removed adhesive from the skin. In full-face photographs, the eyes were blacked out; genitals were screened. At intervals, unmounted transparencies were reviewed with the photographer for critical appraisal of tech-

nique. Transparencies which were considered to be of teaching quality were mounted in glass, and inadequate material was filed unmounted. This review was considered to be helpful to photographer and dermatologist, and the expense of mounting poor material was avoided.

Transparencies were cut to exclude extraneous detail and to improve the quality of the mount. The basic consideration in this review was that the diagnosis should be self-evident in every photograph and that "every picture should tell a story". To aid the student who wished to review slides on an x-ray viewing box, it was important to label slides accurately. In order to prevent the collection from becoming too bulky, selected slides were moved to the dermatology office cabinet, and the unmounted transparencies were filed in the photographic department. From time to time, new material which had been added to the collection was reviewed at a clinical meeting and slides which were bettered by more recent additions were returned to the main file. The staff was notified when an adequate number of slides of any dermatosis had been obtained, and of material still required.

Filing

The collection was filed according to the numbering of the Standard Nomenclature. This system conformed with the method used in teaching and in the records system of the Vancouver General Hospital and helped to familiarize the staff with this nomenclature. A disadvantage was that re-filing of slides after use was more time-consuming than in an alphabetical system. The terms in the Standard Nomenclature were typed on coloured labels. One colour was used for each of the etiological categories (prenatal influence, infection, intoxication, trauma, new growth). The labels were gummed to cards and covered with cellulose tape. The cards were then re-arranged numerically, that is, in the topographical order of the Nomenclature.

The disease index was searched for dermatological terms which did not appear in the dermatological section, e.g. chondrodermatitis. These were incorporated into the file. Certain dermatoses were listed under more than one number. For example, erythema multiforme was listed under three numbers (infection, intoxication, and unknown cause). One number was used for the photographic file.

A file reference book was made by arranging the terms in alphabetical order. The term in this book was followed by the number used on the card in the file. A plastic envelope was fixed to the cover of this book.

A lecturer who wished slides to be reserved for a specific date, noted his requirements on a slip of paper inserted in this envelope. Visitors who borrowed from the collection were asked

to give precedence to undergraduate teaching needs. The files of some dermatoses, notably psoriasis and dermatitis venenata, were subdivided when a large number of slides had been accumulated. In the case of psoriasis, cards were made for the subdivisions of face, trunk, upper limb, lower limb, anogenital region and nails.

Certain useful terms which were not listed in the Standard Nomenclature, for example nummular eczema, were listed under "Miscellaneous". Otitis externa was listed under dermatitis infectiosa eczematoides. In many cases, a slide showed two clinical conditions, for example xanthelasma and vitiligo. The slide was filed under *xanthelasma* and a card was filed under *vitiligo*. By making up these cross-reference cards, the available material was increased.

Supplementary Sections in the File

1. A series of cards was prepared under headings of "Lip lesions", "Anogenital lesions", "Nodular lesions of the legs", etc. This section directed a lecturer to slides filed under a variety of headings and was found to be of value in preparing lectures.

2. Another section, "Primary lesions", directed a lecturer to slides illustrating examples of papules, crusts, bullae, etc.

3. When a lecturer had spoken on a general topic such as "systemic manifestations of skin disorders", he listed the slides which he had found of value. These lists were kept in another section labelled "Lecture Lists".

4. A collection of histopathological slides was assembled and a cross-reference will be set up with the photographic collection.

Slides of patients photographed at Shaughnessy Hospital (Department of Veterans Affairs), Vancouver, were transferred on permanent loan to the university teaching collection—a valuable contribution on the part of the Department of Veterans Affairs to the teaching program. Through the kind co-operation of the Health Centre for Children and the British Columbia Cancer Institute, slides of uncommon dermatoses known to be in their respective collections were recorded on cards kept in the university file of clinical photographs in order to facilitate borrowing as required for teaching.

Descriptive File Cards to Accompany Slides

The photographic requisition form contained space for a clinical history and description. It was desirable to transfer this information to a separate file card which was kept in the teaching collection. A record of biopsy number and follow-up information could be made on this card.

Grateful acknowledgment is made to Miss K. Hoskin, Chief Photographer, Department of Medical Illustration, for the important contribution that she made to the teaching collection of photographic slides.

THE TEACHING OF DERMATOLOGY TO UNDERGRADUATES AT THE UNIVERSITY OF BRITISH COLUMBIA

IV. DERMAL HISTOPATHOLOGY

WILLIAM S. WOOD, M.D., C.M.,*
Vancouver, B.C.

THE PURPOSE of the teaching program of histopathology for the undergraduate is to provide integration between clinical dermatology (the gross visual science) and pathology (the microscopic visual science).

This teaching program extends through all years of undergraduate training and is designed to correlate with each phase of education, starting with basic science and continuing into practical clinical application. It is hoped that on completion of the program the student will have a working knowledge of: (1) Normal microscopic anatomy and basic descriptive histopathological terminology. (2) Common and important skin diseases in which histopathology is of diagnostic aid. (3) The relationship between gross and microscopic findings in these common skin diseases. (4) Practical methods of application of this knowledge.

The initial learning is acquired in first year of medical studies, when the student learns the microscopic features of normal skin. This is reinforced in the second year when the basic terminology of histopathology is outlined as part of the course in general pathology.

The series of four "correlation" lectures in third year is the central "core" of the program, providing the transition from basic science to clinical science and eventually to practical application. These lectures are given jointly by a pathologist and a dermatologist under the auspices of the Department of Pathology in the lecture time of that department, and represent all the best features of an effective integrative co-ordination between a basic science and a clinical field. They are also part of a broad integration program between pathology and many other specialties.

The introductory lecture emphasizes the wide extent and diversity of dermal histopathology as a scientific discipline, and points to the contrast between this detailed study and the limited facts which are to be presented in the lecture series. At the same time, the practical value of knowledge of basic principles and key facts is emphasized.

This lecture also provides the opportunity of reviewing the histology of normal skin and of reviewing basic histopathological terms. These terms are illustrated by examples such as "parakeratosis" as seen in psoriasis and "acanthosis" as seen in

lichen planus. Showing coloured slides of these conditions and describing them by means of this standard terminology reinforces one of the central points—that these basic terms are the "building blocks" of microscopic description, just as basic clinical terms such as "macule" and "papule" are the building blocks of gross description.

Skin biopsy is then discussed. The unique and favourable position of dermatology is emphasized. Not only can the gross specimen be examined with ease, but also tissue for microscopic examination can be obtained without the use of special equipment. Specific biopsy methods are not mentioned at this time, but both the uses and limitations of this procedure are noted.

This question of the practical value of skin biopsy is referred to repeatedly throughout the subsequent detailed discussion of specific skin disease. What are the indications for biopsy? What is the best site for biopsy (from the edge or centre of a lesion? from a recent or old lesion)? Can the pathologist provide a definite diagnosis? In this regard the importance of accurate gross description and significant points in the history as an aid to the pathologist is emphasized. Dermatoses are also roughly categorized on the basis of the degree of aid one can expect from microscopic examination: (1) clinically and pathologically specific—e.g. lichen planus; (2) clinically non-specific and pathologically specific—e.g. leukemia cutis; and (3) clinically specific and pathologically non-specific—e.g. pityriasis rosea.

This is by no means a fixed classification, but it does offer a frame of reference in discussing specific dermatoses and will help to prevent the employment of biopsy indiscriminately by continually reminding the student of the limitations of microscopic examination.

Practical diagnostic application is the next step, and to provide orientation the dermatoses are classified in a practical way. In this first lecture a single example in each group is described and both gross and microscopic findings are illustrated by 3¼" x 4¼" coloured slides. The grouping is as follows: (1) Generalized macular or papular eruptions—e.g. pityriasis rosea. (2) Dermatitis exfoliativa—e.g. psoriasis. (3) Solitary erythematous facial lesions—e.g. basal cell carcinoma. (4) Nodose lesions of the legs—e.g. erythema nodosum. (5) Thickened plaques, front of legs—e.g. neurodermatitis. (6) Pathognomonic histopathology—e.g. xanthoma. (7) Dermatoses of didactic interest—e.g. acne vulgaris. (8) Small pigmented lesions—(a) Pigmented nevus—e.g. nevus pigmentosus, infantile type. (b) Other pigmented lesions—e.g. keratosis seborrhoeica. (9) Cutaneous neoplasia—benign or malignant. (a) Erythematous patch—e.g. keratosis senilis. (b) Small elevated lesion—e.g. granuloma pyogenicum.

The remaining three lectures of this series are devoted to detailed discussion of selected dermatoses in each of the foregoing groups. Whenever

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possible, reference is made to skin disease on the "Common and Important Dermatoses List", a group of 74 important dermatoses discussed in the clinical dermatology lectures.

The Standard Nomenclature of Diseases is followed whenever possible. In some groups, such as the pigmented nevi group, this is most difficult, being a challenge for both the pathologist and dermatologist in their attempts to integrate clinical standard nomenclature and histopathological terminology.

All dermatoses are demonstrated by coloured slides. The clinical photographs are obtained from the large and growing collection developed by the teaching group of dermatologists. The photomicrographs are prepared with the assistance of the pathology department of the Vancouver General Hospital. All of the photographic equipment, as well as instruction in techniques of photography, is supplied by the department of pathology, and the dermatologist is alerted when suitable tissue for photography becomes available.

Throughout the lectures the dermatologist discusses gross pathology (the visual clinical picture) and the pathologist discusses the corresponding microscopic pathology. However, the roles are frequently reversed, which makes for a free interchange of ideas and provides the students with an example of the close integration between pathologist and dermatologist in day-to-day practice.

At the conclusion of instruction on each group of dermatoses the students are invited to ask questions. This has seemed more satisfactory than waiting until the end of the lecture. Problems are brought up when they are fresh, are solved when possible, and sometimes provide a basis for alterations in lecture format.

An example of one of these groups is the category of "Solitary erythematous facial lesions". The following dermatoses are included in this group, common dermatoses being italicized: (1) *Lupus erythematosus-discoid type*. (2) *Basal cell carcinoma*. (3) Sarcoidosis. (4) Pseudocolloid milium. (5) Leishmaniasis of skin. (6) Scleroderma-localized.

The group is first discussed as an entity. It is pointed out that microscopic examination can be of considerable diagnostic aid because of the

specificity or near-specificity of microscopic changes, and because on gross examination the changes may not be diagnostic. The importance of accurate gross description is emphasized, as is the importance of an adequate history. Sarcoid is presented as a condition in which knowledge of clinical findings beyond the skin (hilar lymphadenopathy, hepatomegaly, altered albumin-globulin ratio) may make the difference between a tentative and a positive diagnosis by the pathologist.

The common and important dermatoses in this group are then discussed in detail. For instance, the clinical features of discoid lupus erythematosus are reviewed and an attempt is then made to correlate the gross and microscopic findings. The thickened plaques are related to acanthosis, the follicular plugging to hyperkeratosis extending into the hair follicles, and the erythema to peri-adnexal lymphocytic infiltration.

The less common dermatoses are also discussed, but in much less detail and mainly from the point of view of their place in differential diagnosis (e.g. basal cell carcinoma and leishmaniasis of skin).

The final phase of the integration program is provided in the fourth year, when the student is taken from the classroom and presented with practical clinical problems. This is carried out by means of clinical demonstrations of biopsy technique. Patients are selected from the outpatient clinic and presented to a small group of students. The points emphasized in managing each patient are: (1) accurate gross examination, (2) indications for biopsy, (3) optimum sites for biopsy, (4) type of biopsy (punch, scissor, scalpel), (5) demonstration of biopsy technique, and (6) handling and fixation of tissue.

The objective of this teaching program in dermal histopathology is to provide the future family physician with the knowledge that microscopic examination can be of practical value in his day-to-day management of patients with common dermatoses.

Grateful appreciation is expressed for the important contribution made by Dr. H. K. Fidler, Clinical Professor of Pathology, University of British Columbia, and Director, Department of Pathology, Vancouver General Hospital, to the success of the teaching program described in this paper.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

THE VINDICATION OF LAVAL

During the past year the Canadian medical schools had the privilege of being inspected formally on behalf of the Carnegie Foundation for the Advancement of Teaching. There was every reason to hope that the work would be done thoroughly, and that the authorities who are charged with the maintenance of medical education should be furnished with a body of sound criticism, based upon careful observation. In this they were disappointed. The

work was carelessly done and the report was inaccurate and misleading.

In the case of the faculty of medicine of Laval University, Montreal . . . Dr. Flexner got hold of the wrong book. He thought he had in his hand the "catalogue" of the Montreal school, when in reality he was reading the announcement of an entirely different institution.—Excerpt from editorial, *Canadian Medical Association Journal*, 1: 354, April 1911.

CANADIAN SCHOOLS OF MEDICINE

The following general information regarding Canadian schools of medicine has been made available through the co-operation of the Deans of the twelve medical schools. Fuller details are available on request from each school.—EDITOR.

DALHOUSIE UNIVERSITY

Faculty of Medicine
Halifax, Nova Scotia

L. B. MACPHERSON, Ph.D., Assistant Dean

DALHOUSIE UNIVERSITY, a privately endowed institution founded in 1838, established a Faculty of Medicine in 1868. The main responsibility of the faculty is to the 1.8 million people in the four Atlantic provinces. The aim is to provide the education that will permit a student to enter any field of medical practice or research. During the past five years the number of graduates has averaged 52 and among them have been a small number of students from other parts of Canada and from the United States, the West Indies and other countries. As 65 to 70 new students are now being admitted to the first year, it is anticipated that the number of graduates each year will increase somewhat.

Within the framework of the university, the Faculty of Medicine has a considerable degree of autonomy. A council of 12 members functions in an executive manner on behalf of the faculty and in an advisory capacity to the Dean. Staff appointments within the faculty total about 190, of which 42 are full-time.

The medical course at Dalhousie is of five years' duration following pre-medical studies. As the fifth year is a standard hospital internship, the licence to practise is received from the appropriate provincial licensing board at the same time as the Senate of Dalhousie grants the M.D. degree. The academic year extends from early September to mid-May in the first four years; the internship is of 12 months' duration.

A student from the Atlantic provinces pays tuition fees of \$500 in each of the first four years and \$380 in the fifth year, providing somewhat less than 16% of the cost of his or her education. The governments of the four provinces make direct grants which have increased appreciably in recent years and now provide about 40% of the income of the faculty. A number of entrance scholarships are provided annually for residents of the Atlantic provinces. Several bursaries and prizes totalling about \$3500 are also awarded each year. In addition a substantial fund is available from which loans may be made to students on application.

Dalhousie, like other medical schools, believes that its graduates should be educated professionals and not merely intelligent technicians, and the

nature of the required pre-medical studies is a reflection of this belief. These studies may be taken in the arts and science faculties of any recognized university. The minimum requirements are three years' attendance and a high standard in 15 university classes, but about 60% of the students have a Bachelor's degree on entry into the faculty. Full details of the requirements may be obtained by writing to the Registrar or consulting the university calendar.

The courses in the Medical School itself are under continuous review by a standing curriculum committee of the faculty which is cognizant of the various experiments in medical education which are being conducted in other centres. Some of the features of the curriculum plan now in effect are perhaps worthy of note. The academic year is divided into three terms of 11 weeks each. Intervals of one week are set aside in November and February for term examinations, and in May for final examinations. During the four medical years there is a very gradual change in the emphasis from pre-clinical to clinical subjects. There is a considerable amount of co-operative interdepartmental teaching throughout the whole course. Even in their first year students see a few clinical demonstrations that illustrate the application of their pre-clinical studies. This is continued and increased in the second year. In the third and fourth years the pre-clinical science teachers in their turn co-operate with the teachers in medicine, surgery, obstetrics, pediatrics, and other clinical specialties. The fourth year is a clinical clerkship in which the students spend two months in medicine, two months in surgery, one each in obstetrics and pediatrics, and two months divided among the other specialties. The students work in small groups during this year and almost all of their time is spent in the teaching hospitals.

Dalhousie University has retained control of the fifth-year internship in order to ensure a balanced training. The faculty is fully convinced that this can best be obtained by using the most suitable teaching services within a number of hospitals throughout the Atlantic provinces. All students have two months on a general medical service, two months on medical specialties, two months on a general surgical service, two months on surgical specialties (including one month of emergency surgery), two months on obstetrics and two months on pediatrics. Outpatient as well as inpatient training is included in all services.

The M.D. degree is granted on completion of the rotating internship. Conjoint examinations are held at that time with the Medical Council of Canada and Provincial Medical Board of Nova Scotia. The degree and licence to practise are therefore received in the same year. The rotating internship is also accepted by the Royal College of Physicians and Surgeons as one of the years qualifying for certification or fellowship.

Teaching in the faculty is carried on in the earlier years of the course in the Forrest Building (anatomy), the Medical Sciences Building (biochemistry, physiology and pharmacology), Pathology Institute (bacteriology and pathology), and in the Dalhousie Public Health Clinic. In addition, the Medical and Dental Library (33,000 volumes; 340 periodicals) is available. During recent years extensive changes have been made in the teaching facilities of the Forrest Building and Medical Sciences Building, and a large addition to the Pathology Institute has been completed by the Province of Nova Scotia.

Clinical teaching is carried on mainly in the Victoria General Hospital (549 beds), the Children's Hospital (160 beds), the Grace Maternity Hospital (75 beds; 100 bassinets), Camp Hill Hospital (D.V.A.) (550 beds), the Nova Scotia Rehabilitation Centre (20 beds and outpatients), and the Dalhousie Public Health Clinic (outpatient services). Additions to several of the hospitals are now being planned. Since most of these hospitals serve as referral centres for the province of Nova Scotia, the volume of clinical material is far greater than would ordinarily be found in the institutions of a city of 100,000.

Postgraduate study towards the M.Sc. or Ph.D. degree may be carried out in the pre-clinical departments, and an increasingly large medical research program is carried on in these departments as well as in the clinical departments. The Postgraduate Division of Dalhousie Medical School carries on a very active program for the continuing education of physicians. Visiting lecturers are brought to Halifax and to other centres in the four Atlantic provinces. Dalhousie staff members lecture or present clinics for local medical societies, or other medical groups. Intensive special courses of one week's duration are given to small groups of approximately ten practitioners by the Departments of Surgery, Medicine, Obstetrics, Pediatrics and Anesthesia. In several areas near Halifax groups of practitioners have enrolled for an organized course of lectures, clinics and demonstrations held at weekly intervals and attended by two visiting Dalhousie teachers. Over 12,000 physicians have registered for the various programs of the Postgraduate Division in recent years, and all aspects of this program have been growing rapidly.

LA FACULTE DE MEDECINE DE L'UNIVERSITE LAVAL DE QUEBEC

J.-B. JOBIN, M.D., Doyen,
Faculté de Médecine

CETTE Faculté fut fondée en même temps que l'Université Laval en 1852. Avant ce temps, la seule méthode d'éducation médicale était celle du préceptorat. Dès la fondation de l'Ecole, on nomme un certain nombre de professeurs, on adopte les premiers règlements et on s'occupe de l'organisation matérielle des locaux.

En 1854, la Faculté, commence son enseignement qui comporte des leçons théoriques sur les matières fondamentales et de l'enseignement clinique à l'Hôtel-Dieu de Québec et à l'Hôpital de la Marine. Les élèves doivent même accompagner les médecins dans leurs visites à domicile, assister aux autopsies et suivre un cours de gériatrie.

En 1875, notre Faculté est reconnue par le Collège Royal d'Edimbourg. Puis on voit s'organiser progressivement toute une série de services et de cours. En 1924, on construit un nouveau pavillon de la médecine et on réorganise les départements de l'Ecole, la bibliothèque et les services administratifs.

Des professeurs de carrière sont alors attachés à chacun de ces départements et même l'on fait venir de France un certain nombre de professeurs qui contribuent à accentuer le caractère français de notre enseignement.

Pendant ce temps, les services cliniques s'étaient développés à la cadence des progrès du temps et l'ouverture de la Clinique Roy-Rousseau (maladies nerveuses et mentales), en 1926, celle de l'hôpital du St-Sacrement (hôpital général), en 1928, et celle de l'hôpital de l'Enfant-Jésus, en 1948, fournirent des facilités cliniques additionnelles très appréciables.

En 1932 la Société Médicale des Hôpitaux Universitaires de Québec est fondée. Cette société se réunit deux fois par mois et publie ses travaux dans le "Laval Médical". Les créations hospitalières, la reconstruction de l'Ecole de médecine, la réorganisation de l'enseignement et l'impulsion scientifique dont on a été témoin à cette époque sont en grande partie dues à la valeur exceptionnelle du doyen Arthur Rousseau.

En 1942, la biochimie se forme en un département autonome et en 1943, l'Ecole des Infirmières est fondée. Depuis 1942, le recrutement des professeurs se fait par concours et s'organisent dans les hôpitaux universitaires des cours postsecondaires en chirurgie, anesthésiologie, radiologie, tuberculose, anatomie chirurgicale, psychiatrie et dermatosyphiligraphie.

Ces cours post-gradués procurent à leurs élèves une formation complète qui leur permet habituellement de passer avec succès les concours de

"Fellow" du Collège Royal des Médecins et Chirurgiens du Canada, et celui de Spécialiste du Collège des Médecins et Chirurgiens de la province de Québec.

En 1948, le Conseil Universitaire fonde un département de psychiatrie rattaché à la Faculté de Médecine et responsable du traitement des maladies mentales dans la région et de la formation des spécialistes en psychiatrie.

En 1949, le Conseil Universitaire décide de construire, sur la Cité Universitaire à Ste-Foy, un nouveau pavillon facultaire. La même année, l'Institut du Cancer de l'Université Laval est fondé et des cliniques anti-cancéreuses sont organisées dans les différents hôpitaux affiliés à l'Université. En 1950, le Conseil Universitaire constitue un Exécutif au Conseil de la Faculté de Médecine. En 1951, la Faculté affine une école de technologie médicale dont le directeur est le docteur Rosaire Gingras. En 1953, l'Hôtel-Dieu St-Vallier de Chicoutimi, l'Hôpital St-Joseph de Trois-Rivières et l'Hôpital St-François d'Assise de Québec sont affiliés à l'Université Laval pour fins d'internat junior. La Faculté dispose de quinze hôpitaux qui servent à l'enseignement clinique.

Au cours de l'année 1955-56, les départements de médecine, de chirurgie, de neuro-psychiatrie et d'électro-radiologie ont été organisés et des directeurs ont été nommés à chacun de ces départements et en 1957, l'anatomie, l'histologie et l'embryologie se groupent en un département unique tandis que les départements de pédiatrie, d'obstétrique et de gynécologie, d'oto-rhino-laryngologie, d'ophtalmologie et d'anesthésiologie viennent s'ajouter aux précédents. Tous ces départements ont la responsabilité de coordonner les programmes d'étude et de voir à leur application tant pour l'enseignement clinique que pour l'enseignement théorique.

En septembre 1957, le nouvel édifice de la médecine dans la Cité Universitaire est terminé et mis à la disposition de la Faculté. Cette réalisation merveilleuse de la plus grande valeur fonctionnelle met à la disposition des professeurs et des étudiants tous les moyens matériels désirables tant pour la recherche que pour l'éducation médicale.

En 1957, notre Faculté compte 654 étudiants, quatre professeurs émérites, 43 professeurs titulaires, 44 professeurs agrégés, 116 assistants-universitaires et trois professeurs auxiliaires. Parmi ce personnel enseignant, il y a au-delà de 50 Fellows du Collège Royal des Médecins et Chirurgiens du Canada.

La bibliothèque de la Faculté dispose de 30,000 volumes et de 595 revues scientifiques.

La Comité d'Admission est réorganisé et fonctionne suivant les standards habituels de l'Amérique du Nord.

L'admission est restreinte aux candidats détenteurs d'un diplôme de bachelier ès arts ou de bachelier ès sciences. Les frais de scolarité sont de

\$500 pour les quatre premières années du cours et de \$300 pour la dernière.

À Laval le doctorat en médecine se donne après la cinquième année qui est consacrée en totalité à un internat rotatoire qui se fait sous la surveillance de la Faculté dans les hôpitaux affiliés à notre Ecole de Médecine. Dans chacun des principaux hôpitaux généraux, l'Ecole de Médecine nomme et paye un moniteur qui consacre tout son temps à la surveillance du travail clinique et des études des internes juniors.

L'enseignement de la médecine se fait à Laval exclusivement en français, et à peu près tous nos professeurs avaient autrefois fait leurs études post-universitaires en Europe. Il n'en est plus de même aujourd'hui alors qu'une très forte proportion des nôtres ont fait leurs études post-universitaires en Amérique du Nord. Et nous nous devons de nous adapter aux conditions de géographie humaine dans lesquelles nous vivons. Il nous faut donc, en puisant à deux sources culturelles qui sont différentes à plus d'un point de vue, en arriver à une conception de la culture et de l'éducation médicale qui soient conformes aux normes qui ont cours en Amérique du Nord.

Depuis octobre 1956, nous avons des nôtres qui occupent des postes officiels de résidents dans les hôpitaux de Paris, et des postes identiques viennent d'être obtenus à Lyon.

Par ailleurs, nombreux sont les nôtres qui sont actuellement aux Etats-Unis et dans les autres provinces du Canada et nous en sommes heureux car ils en rapportent une culture et des amitiés qui favorisent singulièrement l'épanouissement de notre groupe ethnique sur le plan national.

La médecine étant en perpétuelle évolution, l'éducation médicale doit s'adapter à des conditions qui changent d'année en année et c'est bien la ferme détermination de la Faculté de Médecine de Laval de ne pas faillir à cette tâche.

UNIVERSITE DE MONTREAL

Faculty of Medicine

Montreal, Quebec

WILBROD BONIN, M.D., Dean

THE UNIVERSITY of Montreal Faculty of Medicine, incorporated in 1920, is a component school of the University of Montreal, and is under the full jurisdiction of the university, a private institution. It is located in the same building as most other component schools of the university, 2900 Mount Royal Boulevard, Montreal. Legal ownership of the school is vested in the Board of Governors of the University of Montreal. The faculty is headed by a dean, a vice-dean and a secretary. The dean or vice-dean may be director of studies.

Present officers are: Dr. Wilbrod Bonin, Dean and Director of Studies; Dr. Roger Dufresne, Vice-Dean; Dr. Joseph-Luc Riopelle, Secretary. Instruction in the faculty is in French.

Entrance requirements are, among others: (a) a sufficient knowledge of French; (b) a B.A. degree of the University of Montreal, or its equivalent, or the brevet of the College of Physicians and Surgeons of the Province of Quebec; (c) a preparation in pre-medical sciences (physics, chemistry, biology) of the same level as section B of the University of Montreal B.A. degree. Notwithstanding these entrance requirements, the faculty reserves its right to select only the better candidates. Completed application forms must be sent before June 1 of the year of contemplated admission.

The minimum period of professional training required by the University of Montreal as a qualification for the M.D. degree is five years, including 12 months of rotating internship in approved hospitals.

The medical curriculum includes instruction in laboratory courses in basic medical sciences at the university building, and clinical teaching in approved hospitals. There are four sessions of 32 weeks each, exclusive of examination periods. The sessions begin on the Wednesday following Labour Day. Fifth-year internship begins on June 1 and ends on May 31 of the following year. A program of graduate work leading to M.Sc. and Ph.D. degrees is also provided by the Faculty of Medicine.

Three schools administered by the Faculty of Medicine, each of them with a director and an education committee, give courses in dietetics, medical technology, physiotherapy, occupational therapy, speech therapy and audiology—namely, the Institute of Dietetics, the School of Medical Technology, and the School of Rehabilitation.

Two series of postgraduate courses leading to a certificate (Anesthesiology, Neuro-Anatomy, Neuro-Physiology and Pharmacological Techniques) have been organized by the faculty. The program of study of anesthesiology comprises a period of training of two years in anesthesia, as well as a number of lectures, seminars and laboratory sessions on basic medical sciences.

Postgraduate courses which change every year are also given to practitioners, residents and interns.

Fees for the medical curriculum are \$525 a year for the first four years and \$300 for the last year, for Canadian residents. There are added charges for students' associations, etc. Fees for graduate courses (M.Sc., Ph.D.) are \$375 a year.

The following hospitals are used for clinical teaching: Hôtel-Dieu, Notre-Dame, Miséricorde, Ste-Justine, Sacré-Cœur, St-Luc, Queen Mary Veterans Hospital, Général de Verdun, Pasteur, Ste-Jeanne-d'Arc, St. Joseph Sanatorium, and Maisonneuve.

A considerable number of scholarships are provided by the Quebec Ministry of Youth and Social Welfare to medical students; and by the Quebec Ministry of Health to students of the School of Medical Technology and the School of Physiotherapy. Loans are made by the Kellogg Foundation to medical students, and by the Polio-myelitis Foundation to students of the School of Physiotherapy. In addition, scholarships and loans are available from a few other agencies.

McGILL UNIVERSITY

Faculty of Medicine
Montreal, Quebec

LLOYD G. STEVENSON, M.D., Dean

McGILL UNIVERSITY, established by Royal Charter in 1821, is privately endowed and the trustees of its funds are the Board of Governors who constitute "The Royal Institution for the Advancement of Learning".

The Faculty of Medicine came into existence in 1829, when the Montreal Medical Institution, founded at the Montreal General Hospital in 1823 and the first medical school in Canada, was transferred to the university.

Candidates for admission to the Faculty of Medicine must complete a minimum of three full years of study in a recognized college or faculty of arts and science in harmony with the requirements for the degree of B.A. or B.Sc. at the college where the courses are taken. During this period of pre-medical study the candidate must complete full courses, with laboratory work, in general and organic chemistry, physics and biology, including at least a half course in zoology. If possible the candidate should take the Medical College Admission Test conducted by the Educational Testing Service.

A new Combined Course in Science and Medicine is also offered. A limited number of highly qualified students enter from high school. This course lasts seven years after junior matriculation, six years after senior matriculation. Medical courses begin before science courses have been completed. The B.Sc. degree is awarded on the completion of the science courses, the M.D., C.M. at the conclusion of the combined course. This program is intended for particularly gifted candidates.

The course of study in medicine is of four years' duration. Each session begins early in September and continues until the middle of June. All years continue for 36 weeks but the final year is completed in time for the degree of Doctor of Medicine, Master of Surgery (M.D., C.M.) to be awarded at the regular university convocation at

the end of May. Graduates in medicine are required to complete at least one year of internship in an approved hospital before they become eligible for a licence to practise medicine. The annual tuition fee in medicine is \$600.

The clinical facilities of a number of Montreal hospitals are available to the Faculty of Medicine. The Montreal General, Royal Victoria, and Montreal Children's Hospitals are the three major teaching hospitals. The Montreal Neurological Institute, Royal Victoria Montreal Maternity Hospital, Royal Edward Laurentian Hospital, Verdun Protestant Hospital, and the Alexandra Hospital for Infectious Diseases provide clinical teaching in special fields. The university is fortunate in having such a large amount of excellent clinical material made available for teaching of its students by these institutions. An opportunity for living-in by students in the senior year is provided by the major teaching hospitals when the student is in the medicine, surgery, pediatrics and obstetrics rotations.

Opportunities for postgraduate instruction exist in all departments of the Faculty of Medicine. In the basic medical sciences such instruction is offered under the direction of the Faculty of Graduate Studies and Research, leading to M.Sc. and Ph.D. degrees. A number of the clinical departments offer organized postgraduate courses of some years' duration leading to a diploma in the appropriate field, such as Internal Medicine or Psychiatry, from McGill University. The M.Sc. is also offered, e.g. in Experimental Surgery.

The needs of the medical student and graduate are well served by the Medical Library, which contains more than 90,000 bound volumes and extensive collections of other items. The chief value of the library is in its periodical collection, and relatively little is lacking in the way of important journal literature in all languages. The ophthalmological section is particularly outstanding.

A unique possession of McGill University is the Osler Library. This special library of the history of medicine and science was bequeathed by Sir William Osler to his alma mater, and its collection of more than 12,000 volumes is outstanding in this field.

In addition to the rich National Scholarships and University Scholarships, financial assistance for worthy and needy students is available in limited amount (a maximum of \$600 yearly) through scholarships such as the Keith Hutchison and C. B. Keenan Memorial Scholarships and other smaller scholarships and bursaries established for this purpose. Limited assistance in the form of loans, repayable after graduation, is available to needy students with satisfactory academic standing but not of scholarship calibre. Such awards cannot normally be considered until a student has established his competency by completion of at least one year of medical study.

UNIVERSITY OF OTTAWA

Faculty of Medicine
Ottawa, Ontario

J. J. LUSSIER, M.D., Ph.D., Dean
J. AUER, M.D., D.Sc., Assistant Dean

THE UNIVERSITY of Ottawa was incorporated in 1866 by an Act of Legislature of the Province of Canada. The University is privately governed by the Oblates of Mary Immaculate. The Faculty of Medicine was founded in 1945 and its first class graduated in 1951.

The aim of the founders of the Faculty of Medicine was to establish a medical school serving the peculiar needs of the Canadian Capital as the centre of bilingual Canada. A great number of faculty members are bilingual and the students are primarily young men and women of English and French descent. We believe that such an institution, where English-speaking and French-speaking Canadians intermingle and learn both languages in pursuing their common scientific and professional goal, develops a spirit of true Canadianism based on mutual understanding.

The program of studies leading to the M.D. degree consists of two pre-medical and four medical years. Students attending the pre-medical years are actually registered in the Faculty of Medicine.

Students are admitted to the first pre-medical year after having passed the Grade XIII examinations of the Department of Education of the Province of Ontario (or its equivalent), and having received honours standing in the following subjects: French (composition and literature), English (composition and literature), mathematics (a choice of two of the following: algebra, geometry, trigonometry), chemistry, physics, and one of the following: history, zoology, botany, a third mathematical subject, or a third language. Students who have completed two years of college could be admitted to the second pre-medical year if their curriculum included all the subjects taught in our first year. Students holding a B.A. degree could qualify for either the first or the second pre-medical year, depending on the science subjects they had already taken. Students with a B.A. or a B.Sc. degree, whose college curriculum included the equivalent of our pre-medical subjects, could be admitted directly to the first year of medicine proper.

The degree of Doctor of Medicine is granted at the end of the four medical years. One year of internship is required before a student may obtain the licence of the Medical Council of Canada to practise.

The Faculty of Medicine offers a program of postgraduate studies leading to the M.Sc. and Ph.D. degrees in the pre-clinical sciences. The Department of Psychiatry of the University offers postgraduate training in association with affiliated

hospitals to prepare students for certification in the specialty of psychiatry by the Royal College of Physicians and Surgeons of Canada. In addition, the two main teaching hospitals of the university, the Ottawa General and the Ottawa Civic, have been approved by the Royal College of Physicians and Surgeons of Canada for graduate training in the various medical specialties.

The Medical Building, inaugurated in 1954, comprises large teaching laboratories, many small research laboratories, lecture rooms for all preclinical sciences, the medical library, and the administrative offices.

The Ottawa General Hospital (600 beds) and the Ottawa Civic Hospital (1200 beds) are the main teaching hospitals of the university. Clinical teaching is also conducted at the Veterans' Pavilion of the Ottawa Civic Hospital (120 beds), St. Vincent's Hospital (200 beds), Royal Ottawa Sanatorium (315 beds), Rockcliffe Military Hospital, and the Ontario Hospital in Brockville.

Medical care is available to students through the Students' Health Service. No dormitory facilities are provided at present, but students have no difficulty in finding lodging near the campus.

The Committee on Admissions considers scholastic records, letters of recommendation from pre-medical teachers, and the impressions gained from a personal interview. The committee prefers to decide which candidates should be granted this interview. There is no discrimination because of race, sex, creed, colour, or national origin. However, the number of non-Canadian citizens who can be admitted each year is limited.

The tuition fee for Canadian students is \$440 for each of the pre-medical years, and \$550 for each of the other years. Non-Canadian students add \$300 to the regular fee.

Students who are Canadian citizens may apply to the appropriate authorities of their Provincial Government for scholarships, which are usually awarded on the basis of scholastic achievement and financial need. For the benefit of medical students in particular there is a loan fund established in 1958 by the Kellogg Foundation, and a loan and bursary fund established by the Ontario Medical Association in 1959. These funds are administered by a special committee of the faculty.

Registration for 1960-61 is 279.

The problem of presenting the true value of general practice to the undergraduate is not yet fully solved. It is impossible to "teach" general practice to undergraduates in the ordinary sense of this term. General practice is a postgraduate discipline, the lessons of which are learned only in the hard school of experience. Undergraduates must not be left with the idea that general practice is only for those who are not good enough to enter a field of specialization. General practice should be presented to medical students as a career of fascinating interest and an essential service to humanity, and one that gives the practitioner a wholesome satisfaction not easily surpassed in any other sphere.—Editorial, *New Zealand M. J.*, 59: 315, 1960.

QUEEN'S UNIVERSITY

Faculty of Medicine
Kingston, Ontario

G. H. ETTINGER, M.D., Dean

QUEEN'S UNIVERSITY is an endowed institution administered by a Board of Trustees who are elected primarily by its graduates. Its income is made up of fees from students, interest on endowments, and grants from the Provincial and Dominion Governments. The Faculty of Medicine is administered by a faculty board, consisting of the principal, vice-principal, dean, professors, and associate and assistant professors. The faculty selects the students, conducts the teaching and examinations, and recommends to the Senate those whom it considers worthy to receive degrees in medicine. The Senate, a body consisting of the principal, vice-principal, faculty deans and elected members from each faculty, awards all university degrees and determines all matters of an academic nature, including the approval of recommendations which come from the various faculties.

The course of six years is divided into two years of pre-medicine and four years of medicine. Following graduation, the student is required to spend one year in a rotating internship at a teaching hospital approved by the university, before he is given a certificate of completion of studies.

For admission to the Faculty of Medicine, the candidates must have Grade XIII matriculation standing or equivalent, in English, a second language, physics, chemistry, two papers in mathematics, one of which should be trigonometry, and another optional subject. Sixty-four freshmen are admitted annually.

A limited number of students who have taken their pre-medical education in the Faculty of Arts in this or another university will be accepted for the first medical year.

The teaching hospitals in Kingston are: the General Hospital (500 beds), the Hôtel-Dieu (300 beds), St. Mary's Hospital (for chronic illness — 116 beds), Ongwanada Sanatorium (for tuberculosis — 160 beds), the Ontario Hospital (for mental illness — 1500 beds), and the Canadian Forces Hospital, Kingston (125 beds).

Opportunities for research and graduate training are available in the basic medical and the clinical departments, and may be supplemented with teaching fellowships. A two-year course in medical radiology is open to graduates of any Canadian medical school, and leads to a diploma in either diagnostic — D.M.R.(D) — or therapeutic — D.M.R.(T) — radiology. A three-year course leading to a diploma in anesthesia (D.A.) is also offered.

The degree offered to undergraduates is M.D. Graduate degrees available are M.Sc.(Med.) and Ph.D.

The fees are: sessional fee for pre-medical undergraduate, \$425; for medical undergraduate, \$550; student interest fee (including health service), approximately \$40; sessional fee for M.Sc.(Med.) and Ph.D., \$325; D.M.R. and D.A. fees, \$325; degree fee, M.Sc.(Med.), \$20; degree fee, Ph.D., \$50.

Both men and women are admitted to the Faculty of Medicine. In the first year all women and a number of the men are housed in university residences. The university maintains a housing bureau and can advise students as to suitable boarding and lodging houses. Women not in residence may obtain meals at Ban Righ Hall, and men may be served in the cafeteria at the Students' Memorial Union. The average cost of room and meals is from \$15 to \$18 a week.

Entrance and matriculation scholarships varying in value from \$30 to \$1500 are open to candidates for admission to medicine. Details may be obtained from the University Registrar. In addition there are bursaries including Dominion-Provincial Student Aid Bursaries and the Atkinson Charitable Foundation Bursaries. Applications for bursaries from these funds should be made through the high school principal. Reuben Wells Leonard Bursaries are also available; information should be obtained from the Toronto General Trusts Corporation, Toronto.

A number of scholarships and prizes are awarded at the conclusion of each undergraduate year, some of which are more than sufficient to pay the class fees. The total sum of these exceeds \$12,000. A university loan fund offers help in meeting minor financial distress.

UNIVERSITY OF TORONTO

Faculty of Medicine

Toronto, Ontario

J. A. MacFARLANE, M.B., Dean

THE MEDICAL SCHOOL of the University of Toronto is a faculty of that university, and as such receives support from the Government of Ontario. It also receives funds from the fees paid by students, and from private endowments.

Candidates for admission to the first pre-medical year must have passed the Grade XIII examinations of the Department of Education of Ontario (or their equivalent) in the following subjects: English (2 papers), chemistry, physics, mathematics (algebra, trigonometry, geometry), a foreign language (2 papers). In the two pre-medical years the student studies physics, chemistry, zoology, comparative anatomy, and psychology. He also takes two years of English, two years in either philosophy or history, and two years in another subject of his own choosing from a limited list including mathematics, botany, and the humanities.

The number of students admitted to the first pre-medical year is 125. For the most part, these students come from the province of Ontario. The class is increased to 150 in the first medical year by the admission of students who have taken a degree in arts or science and have included in their course inorganic and organic chemistry, physics, biology and comparative anatomy, as well as English. A limited number of applicants are admitted at this level from other universities in Ontario, from other provinces of Canada, and from the British Commonwealth.

The professional course consists of four years, the first two of which are devoted to the pre-clinical sciences, the clinical work starting during the second year and continuing through the third and fourth years. The instruction in the final year is carried on almost entirely in the wards, laboratories and outpatient departments of the hospitals affiliated with the university. These include four general hospitals—the Toronto General, St. Michael's, the Toronto Western, and the Wellesley; the Hospital for Sick Children; the Toronto Psychiatric Hospital, the Women's College Hospital; and the Princess Margaret Hospital. The facilities of Sunnybrook Hospital and the Toronto Hospital for Tuberculosis are also used for postgraduate training.

The fees in the pre-medical years are \$465 for men and \$444 for women. In the first three years of the professional course they are \$707 for men and \$686 for women; in the final year they are \$717 and \$696 respectively.

Limited financial aid is available to students from the university bursary fund, from Dominion-Provincial bursaries provided by the government, from the Medical Alumni Association bursary fund, and from the Atkinson Foundation. There are also three loan funds, one established by the W. K. Kellogg Foundation for students in the upper years, one provided by the Ontario Government, and one by the Medical Alumni Association. There are some 50 scholarships and bursaries from endowed funds and bequests amounting to approximately \$12,000.

The average number of students graduating each year is 150. There are at present approximately 6000 living graduates of the school.

The degree granted by the university on completion of the course is Doctor of Medicine. Before 1930 the degree given on graduation was Bachelor of Medicine. The degree of Bachelor of Science (Medicine) is conferred following a year's special work devoted to research in one of the basic science departments of the faculty. The degree of Master of Surgery is awarded to graduates in medicine who have completed three years' postgraduate work in surgery and at least one year's training in the teaching hospitals of the University of Toronto. Candidates for this degree must submit a satisfactory thesis, and pass an oral examination on this thesis.

The postgraduate program of the school includes diploma courses in Psychiatry, Medical Radiology

and Anesthesia as well as other organized graduate courses, not leading to a diploma, in Anesthesia, Anatomy, Medicine, Obstetrics and Gynecology, Ophthalmology, Otolaryngology, and Surgery. Short refresher courses for general practitioners and for specialists are given each year on a variety of subjects, and members of the teaching staff take part in the course offered each fall by the Medical Alumni Association. An important part of the post-graduate program consists of travelling (or decentralized) clinics. Under this arrangement senior teachers from the Medical School visit different centres in the province and conduct rounds and clinics using cases presented by doctors in the community. A similar program of postgraduate clinics limited to the field of cardiovascular disease has been made available to doctors in different communities in Ontario through the support of the Ontario Heart Foundation. This special group of clinics will be continued in the 1961-1962 session. Advanced graduate courses in Medicine, Surgery, and Obstetrics and Gynecology are given each fall over a six-weeks' period. The Departments of Ophthalmology and Otolaryngology, either alone or in collaboration, offer from time to time short courses in these specialties.

The faculty includes also in its program courses leading to the Diploma in Public Health and the Diploma in Industrial Health given in the School of Hygiene.

A Division of Rehabilitation Medicine has been established within the faculty. The courses in Physical and Occupational Therapy, and in Speech Pathology and Audiology come under its direction, as well as the teaching in physical medicine to undergraduate students, and the training of graduate physicians who have a particular interest in this field. Approximately 200 students are enrolled in the three-year course leading to the Diploma in Physical and Occupational Therapy. The two-year course in Speech Pathology and Audiology was established in 1958. Successful candidates are eligible for the Diploma in Speech Pathology and Audiology. Applicants should preferably have a Bachelor's degree from an approved college or university.

The Department of Art as Applied to Medicine is under the direction of the faculty. It not only serves as a department of medical illustration for the school, but at the same time provides training for medical artists in a three-year course of study leading to the Diploma in Art as Applied to Medicine.

It must be laid down, in the first place, that for a hospital to take, and to maintain, first rank its wards must be freely open to medical students, and its staff be connected with a medical school. Failing this, the hospital cannot be regarded as of the first order.—Excerpt from editorial, "Medical School and Hospital", *Canadian Medical Association Journal*, 1: 350, April 1911.

UNIVERSITY OF WESTERN ONTARIO

Faculty of Medicine
London, Ontario

J. B. COLLIP, C.B.E., M.D., F.R.S., Dean
G. E. HOBBS, M.D., Assistant Dean

THE FACULTY OF MEDICINE, University of Western Ontario, has been in continuous existence since the first classes were held in 1882. Originally operating as a joint stock company, this was discontinued and the Faculty of Medicine came under the direct control of the same Board of Governors as the rest of the university in 1912, and moved to the present medical building in 1921.

The University of Western Ontario is a private university but in receipt of government grants in common with other universities with faculties of medicine in the province.

The course leading to the degree of Doctor of Medicine requires a minimum of six years. The teaching is provided for two years in the Faculty of Arts and four years in the Faculty of Medicine. In the Faculty of Arts the first year is taken in common with all sciences. The majority of students then proceed to a second pre-medical year where the subjects and content have been modified to be more relevant to medicine. Arrangements are made to allow a limited number of students with other pre-medical backgrounds to enter the medical course.

The following is the requirement for admission to Pre-Medicine: Grade XIII standing in English, mathematics (algebra and geometry), French or German or Latin, chemistry, physics, and botany or zoology or trigonometry and statics. During the two pre-medical years teaching is provided at the campus of the university. In the four medical years teaching is carried out in the Faculty of Medicine building, a section of the Meek Laboratory at Victoria Hospital, and affiliated hospitals. The Faculty of Medicine building is located in the vicinity of Victoria Hospital, near the centre of the city and some distance from the main buildings of the university.

The tuition fees are \$425 for each of the two pre-medical years and \$675 for each of the four years in the Faculty of Medicine.

Clinical teaching is carried out in Victoria Hospital, War Memorial Children's Hospital, Westminster Hospital, St. Joseph's Hospital, St. Mary's Hospital, Beck Memorial Sanatorium, the Ontario Hospitals in London and St. Thomas, and Bethesda Home and Hospital.

A large number of scholarships and awards are available, as well as a substantial student loan fund.

Funds are available to bring outstanding lecturers to the Faculty of Medicine each year in medicine, surgery, pathology, and psychiatry.

Facilities are available for training in both the clinical specialties and basic sciences. Inquiries should be directed to the department concerned.

UNIVERSITY OF MANITOBA

Faculty of Medicine
Winnipeg, Manitoba

LENNOX G. BELL, M.D., Dean

THE UNIVERSITY OF MANITOBA, which is a provincial institution, confers the degree of Doctor of Medicine. Seventy-two students are admitted to the Faculty of Medicine annually. For admission, following junior matriculation, three pre-medical years in the Faculty of Arts and Science are required. The course in the Faculty of Medicine is four years, consisting of two years largely devoted to the pre-clinical subjects, a third year in which instruction is mainly clinical, and a fourth year in which clinical instruction is carried out mainly at the bedside. The chief teaching hospitals are the Winnipeg General Hospital, St. Boniface Hospital, Children's Hospital of Winnipeg, and Deer Lodge Veterans' Hospital. The main university buildings are in Fort Garry, and the buildings of the Faculty of Medicine are adjacent to the Winnipeg General Hospital. Fees in the Faculty of Medicine are \$520 a year. Dr. David A. Stewart Memorial Scholarships of a value of from \$200 to \$450 annually are available to a limited number of students. Assistance may also be obtained from the W. K. Kellogg Student Loan Fund and from Dominion-Provincial Youth Training Scholarships. Scholarships of smaller amounts are also available.

Outstanding features of the Faculty of Medicine are: an excellent library housed in a new wing, and a large museum of pathology in which approximately 4000 specimens are permanently displayed.

In order that senior students may learn at first hand something of the conditions, problems and satisfactions of rural practice, fourth-year students are encouraged to spend a period of two weeks under a selected rural preceptor. This has proved to be a valuable educational feature of the course.

Four-year postgraduate diploma courses in Surgery and Anesthesiology are offered. These consist of a series of graded resident appointments at the teaching hospitals, and lectures and seminars especially designed for candidates preparing for the examinations of the Royal College of Surgeons of Canada.

UNIVERSITY OF SASKATCHEWAN

Faculty of Medicine
Saskatoon, Saskatchewan

J. W. MACLEOD, M.D., Dean

THE COLLEGE of Medicine had its origin in the School of Medical Sciences, formed in 1926 to provide the first two years of medical studies. The curriculum was altered in 1945 to conform to the four-year pattern adopted by most Canadian universities. With the laying of the cornerstone of the University Hospital and consolidation of plans for clinical departments, the medical school became the College of Medicine in 1952. Clinical departments were set up two years later with full-time heads in medicine, surgery, obstetrics and gynecology, therapeutic radiology, and social and preventive medicine. With assistants in several departments, the number of full-time teachers and research workers in the College of Medicine is 101, of whom 61 are in clinical and hospital departments. There are 121 part-time teachers in Saskatoon, Regina, Moose Jaw, North Battleford and Weyburn. The first M.D. degrees were conferred at the regular university convocation on May 10, 1957. A year of internship satisfactory to the College of Physicians and Surgeons of Saskatchewan is required before licensure.

The Medical Building, opened in 1949, has four full floors and a fifth floor containing animal quarters, operating rooms and radio-isotope laboratories. Connecting with it on three floors is the University Hospital. Opened in January 1955, this 550-bed hospital is running at full occupancy in almost every department. Special features include psychiatric and rehabilitation wards on the fifth floor, sharing facilities in therapy; a large cafeteria dining room on the sixth floor with facilities for meal-time committee meetings; a drug-manufacturing unit run as a teaching activity by the College of Pharmacy; the Cardiopulmonary Laboratory, the Metabolic Laboratory and facilities for work with radioactive isotopes. In the hospital are housed also the Cancer Clinic of the Provincial Department of Public Health, the Canadian Red Cross Society Blood Bank and an outpatient department occupying two floors of one wing. The Saskatchewan Cancer and Medical Research Institute, connected by tunnel with both Medical College and Hospital, houses the Department of Cancer Research, a unit supported by the National Cancer Institute of Canada. In it also are animal quarters, operating rooms, an electronics workshop, facilities for isotope and radiation studies, constant-temperature rooms and a module system of laboratories suitable for biochemistry, tissue culture and other standard research techniques. These are used chiefly by the clinical departments.

The University Hospital does not come under the university, but is administered by a board

established by the University Hospital Act. By the latter's terms three representatives of the university are on the Hospital Board, two of whom must always be the President of the university and the Dean of Medicine. The identifying of medical care with educational goals is further assured by the rule whereby the professorial heads of university departments are also the chiefs of the corresponding hospital departments. In line with the goal of the College of Medicine to prepare graduates who will meet the needs of Saskatchewan communities, special attention is being given to the training of family doctors. During the undergraduate period the student is exposed to the best possible examples of the general practice of medicine. This is aided by a rural preceptorship in the final year and by the close collaboration in the clinical departments of full-time teachers, part-time specialists and selected general practitioners. The latter are attached to services in the University Hospital through the Department of General Practice. An urban preceptorship is under trial. Plans are under way for a family care teaching and research unit. A specially arranged two-year internship is urged as minimum training for those who desire to become family doctors. Clinical teaching is carried out also at the Saskatoon City Hospital, at St. Paul's Hospital, at the Saskatoon Sanatorium and at Saskatchewan Hospital at North Battleford (psychiatry). The first two of these are affiliated with the university for specialist training in several specialties. Fourth-year students spend a month in either obstetrics or pediatrics at the Regina General Hospital or the Regina Grey Nuns' Hospital.

Entrance to medicine is by the bachelor's degree in arts or science, or the completion of at least two years of university work after Grade XII. Apart from required work in English, a foreign language, physics, chemistry and biology, emphasis is placed on liberal studies along lines of personal interest. This may be illustrated by the following excerpt from the calendar: "Students are reminded that there is no advantage in taking medical subjects such as biochemistry, physiology or bacteriology during their pre-medical work. Nor will the accumulation of many credits in science subjects give one applicant advantage over another with similar accomplishment in other academic fields, such as humanities or social sciences. Since the branches of medicine are so varied, there is room for a wide variety of talents and backgrounds among those admitted to its study. In any one class it is hoped that there will be some students who have gone deeply into one or more of the following fields: the physical or biological sciences or mathematics; philosophy, psychology, sociology or anthropology; history, literature or languages, either classical or modern."

Forty students are admitted, of whom about 10% may be from outside the province. The latter

are selected on the basis of distinctive qualities in background or experience as well as scholarship. The tuition fee for first-year medicine is \$425 and for subsequent years \$475. Other student fees, including health service, are \$50. A limited number of students may live in university dormitories.

Postgraduate study towards M.Sc. or Ph.D. degrees may be carried out in the medical science departments. Advanced work in the clinical fields may be arranged through the heads of the respective departments or the Executive Director of the University Hospital. Residency training is available in most specialties. Extra clinical experience is provided for general practitioners on an individual basis.

UNIVERSITY OF ALBERTA

Faculty of Medicine
Edmonton, Alberta

J. S. THOMPSON, M.D., Assistant Dean

THE UNIVERSITY of Alberta, of which the Faculty of Medicine is an integral part, is an institution supported by the government of the Province of Alberta.

Minimum entrance requirements are two complete years of university work following senior matriculation. There are four required subjects at the university level, namely organic chemistry, inorganic chemistry, physics and zoology. The other classes that the student may take will vary tremendously depending on the particular pattern in the Faculty of Arts and Science (or other faculty) in which he does his work.

The medical program takes four academic years of 33 weeks each, exclusive of holidays and final examinations. The schedule of fees for the different years is: first, \$425; second, \$525; third, \$525; fourth, \$525. In addition each student in each year pays \$29.50 in general university fees.

At graduation the student receives the degree of Doctor of Medicine.

The chief teaching hospitals are the University Hospital, the Royal Alexandra Hospital, the Edmonton General Hospital and the Misericordia Hospital, which are all general hospitals located in the city of Edmonton. Use is also made of the facilities of the Ponoka Mental Hospital, the Charles Cammell Indian Hospital, the Alberta Tuberculosis Sanatorium and the Provincial School for the Deaf.

Financial aid for Alberta residents is relatively generous. Loans and grants are available under the Students Assistance Act of the Province of Alberta which will cover perhaps a quarter of the total cost, including room and board for the time actually spent in medical school. Additional emergency funds are available in the W. K. Kel-

logg Student Loan Fund as well as through a small loan fund established by the class of 1941.

Major scholarships of \$200 each are made possible by the College of Physicians and Surgeons of Alberta. Two such scholarships are given annually in each of the first three undergraduate years. In addition the College provides a research fellowship of \$1200 (plus fees for the next year) which is awarded to a student who takes a year from his medical course to obtain further training in one of the basic sciences. Certain medals and small prizes are available in certain subjects in all years of the course.

A major revision of the curriculum was undertaken about five years ago and we are now engaged in a searching survey to determine whether or not this revision has had the desired effect or if further changes will be necessary. The curriculum as it exists at present gives students considerable patient contact in their second year and has clinical clerkships in each of the last two years. The basic sciences, except pathology, are almost entirely confined to the first and second years, all of Anatomy, Physiology and most of Biochemistry being studied in first year. In all years student participation in seminars, discussion groups and clinics is emphasized.

In the past year new facilities have been added to both the University Hospital and the Medical Sciences Building. A new service wing of the hospital includes an outpatient department of very up-to-date design, as well as offices for academic staff and certain service departments for the hospital. The addition to the Medical Sciences Building will more than double the existing space for Anatomy, Biochemistry and Physiology as well as providing a large surgical-medical research area and excellent animal quarters. In addition space will be provided for Dentistry, Pharmacy, Physiotherapy and Nursing.

Facilities for taking advanced degrees are available in various departments including Anatomy, Physiology, Biochemistry, Bacteriology, Pathology, Medicine and Surgery. Such study is under the jurisdiction of the Faculty of Graduate Studies of the University of Alberta.

There is a well-integrated program of graduate education in the Faculty of Medicine designed for those wishing to take the specialty examinations of the Royal College of Physicians and Surgeons of Canada. Although no degree is granted in this program, the students are enrolled in the Faculty of Graduate Studies and most take part in the undergraduate teaching to such an extent that they receive an honorarium for their services. Forty-nine trainees have now completed this program and in 1959-60 34 were enrolled in nine specialties ranging from Surgery to Psychiatry. Nineteen of those completing their graduate training under this plan are now on the staff of the Faculty of Medicine of this university. For posi-

tions in this program, commencing July 1, 1960, 25 applications were received, of which 14 were accepted.

A program in Continuation Studies is carried out in co-operation with the College of Physicians and Surgeons of Alberta and provides postgraduate education for the practitioners of Alberta in the form of short (two to three days) courses held in Edmonton, or of short visits by travelling teams to centres throughout Alberta.

UNIVERSITY OF BRITISH COLUMBIA Faculty of Medicine *Vancouver, British Columbia*

JOHN F. McCREARY, M.D., F.R.C.P.[C], Dean
JAMES M. MATHER, M.D., D.P.H.,
Assistant Dean

THE UNIVERSITY of British Columbia Faculty of Medicine was established in 1950 and its first class graduated in May 1954.

The first two years of the course, devoted to the fundamental or pre-clinical medical sciences, are mainly given on the campus of the university. However, during the second year, instruction is transferred in part to the Vancouver General Hospital, Shaughnessy Hospital, St. Paul's Hospital and Grace Hospital.

The physical plant consists of a group of medical sciences buildings on the campus of the university, where three new modern buildings are in process of completion to provide well-lighted, well-equipped teaching and research laboratories. In addition, a number of departmental offices and laboratories of the clinical departments are housed at the Vancouver General Hospital and in a new medical school-pathological services building at the hospital site. In addition to 500 beds assigned at the Vancouver General Hospital for teaching medical students, clinical facilities of St. Paul's Hospital, Grace Hospital, Shaughnessy Hospital, the Provincial Mental Hospital, the Children's Hospital and the G. F. Strong Rehabilitation Centre are used in clinical teaching.

Library facilities, including medical reference sections and study areas, are located in the Biomedical Section of the University Library and in the Biomedical Branch Library located in the Faculty of Medicine Building at the Vancouver General Hospital.

To add to the university facilities for medical research, the G. F. Strong Laboratory for Medical Research was established in 1959. The Kinsmen Laboratory for Neurological Research was established in September 1960, and the Cancer Research Centre, a research unit of the National Cancer Institute, will be in full operation in September 1961.

The entrance requirement of the Faculty of Medicine includes three years of pre-medical studies in an approved Faculty of Arts and Sciences. Minimum course requirements include one year of English, one year of mathematics, three years of chemistry, one year of physics and one year of biology-zoology.

Classes for the first year in medicine are limited to 60 students. There are no restrictions as to residence. No applicant is accepted who has been required to withdraw from another medical school. A personal interview may be requested of any applicant.

The academic year begins on the first Tuesday after Labour Day. Tuition fees in each year of the medical course are \$551. No extra tuition fees are

charged non-residents, but non-residents of the province must pay a \$10 hospitalization fee.

The examinations of the Medical Council of Canada are used as conjoint final examinations in the fourth year. All written and oral examinations are normally held in late April or early May. Each candidate for the degree of Doctor of Medicine is required to present a thesis acceptable to the faculty.

Application blanks are available between August 15 and December 15. Accepted applicants must pay a preliminary fee of \$100 to be applied on the tuition of the first year of the medical course. Correspondence should be addressed to the Faculty of Medicine, University of British Columbia.

MEN AND BOOKS

MEMORIES OF A FELLOW OF THE ROYAL COLLEGE OF SURGEONS OF 1896*

THE HON. HERBERT A. BRUCE, LL.D.,
M.D., F.R.C.S., F.A.C.S., *Toronto*

WHEN I attained my 90th birthday on September 28, 1958, I was the fourth oldest living F.R.C.S. Since then the grim reaper may have advanced my seniority. Recently I have been reading the excellent history of the College written by Sir Zachary Cope and it has brought to life many memories of the years 1894-96 which I spent in London working for my Fellowship.

Inspired by the late Dr. George Peters—the first Canadian to obtain a Fellowship in the Royal College—I decided to follow his example. After obtaining my medical degree from the University of Toronto in 1892 and serving as a surgeon on the C.P.R. steamship *Empress of India* on the Pacific, I was able to get a free passage to England by making myself responsible for the safe delivery of a rich young alcoholic to his home in Edinburgh after a world tour.

On arrival in London I presented my credentials to Mr. H. G. Hallett at the College. They were in order and I registered at the Medical School of University College on Gower Street. I was able to get a small single room at a boarding house in Brunswick Square, as well as three meals a day, for thirty shillings a week. Baths were a shilling each, extra.

After passing the conjoint examinations, and qualified to practise, I took a locum tenens position

during my first summer vacation which enabled me to earn a little money. This post was in Woolwich, where I took over the work of a general practitioner, complete with his house, his office, and a horse and buggy to visit his patients. His office hours were from 7 p.m. to 10 p.m. Adjoining this office was a room flattered by the name "dispensary". Here were four demijohns conveniently filled with suitable remedies for four common types of complaints. All one had to do was to make a quick diagnosis and write the number of the appropriate mixture on a piece of paper which the patient took with his bottle and had it filled. The charge for diagnosis and medicine was a shilling. The fee for driving and seeing patients in their homes was one and sixpence. This period gave me an interesting insight into the life of the people living in the East End of London. In the autumn I returned to my studies for the Fellowship.

At University College Hospital my chief teachers were Christopher Heath, Arthur Barker, Victor Horsley, Rickman Godlee, Rose Bradford and Professors G. D. Thane, E. A. Schäfer and Leonard Hill.

Heath's clinics dealt with general surgery. Before entering the operating room he would hang up his coat in the passageway and put on an old frock coat—spattered with dried blood—which he kept exclusively for operating. Then he turned his coat cuffs back, immersed his hands in a 1:2000 solution of bichloride of mercury and started to operate. He was at least trying to follow the principles of antisepsis enunciated by Lister.

Before leaving for Canada, I called to say good-bye to Heath and thank him for his kindness to me. In my nervousness I must have put my foot on the bar of his chair, for which he rebuked me.

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It did not help the interview. However, I managed to express my appreciation and we parted good friends. To me it seems difficult to imagine that I was taught by a man who had served in the Crimean war. Heath was a dresser in the Navy before he took his M.R.C.S. in 1856.

I remember seeing Arthur Barker perform one of his first operations under a local anesthetic—the subcutaneous injection of a solution of procaine—which method he had learned in Paris.

I was so attracted by Victor Horsley's work that I was almost inclined to specialize in brain surgery. However, before the turn of the century there was a greater field for general surgery in Canada. He was a brilliant teacher and surgeon and personally was very kind to me. I remember once he invited me to his house in Cavendish Square for luncheon. Unprepared, his wife seemed disturbed at seeing a guest and said, in front of me, that she had only enough chops for two and that he would have to share his with me! Sir Victor Horsley and his family stayed with me at my home when the B.M.A. met in Toronto in 1906. I can still see him lying at full length on the floor preparing charts showing the dangers of alcohol, charts which he used later at breakfast meetings. He was a most intemperate tea drinker, for it was served to him five times a day.

One of the outstanding teachers was Sir Rickman Godlee—the nephew of Lord Lister. He taught us comparative anatomy. My diploma bears his signature. When he was President of the College in 1913 and attended the opening of the American College of Surgeons, of which I was a founder member and Regent, our paths happily crossed.

We studied anatomy under Thane, physiology under Rose Bradford, histology with Schäfer and laboratory work with Leonard Hill.

Albert Carless coached us in general surgery, which classes he held in his home. At the time, he was revising the well-known book on surgery by Rose, to which Carless later added his name. As students we went over the manuscript in minute detail and from time to time suggested changes to clarify the meaning. In fact, our small class felt that we should have been included as joint authors.

At The London Hospital, where I attended his clinics, I saw Frederick Treves perform some of his early appendectomies, among other operations. His name will always be coupled with the appendectomy he performed on King Edward VII. Although appendicitis was by 1895 a recognized condition, the first operation for its removal had been performed just eight years before, in Boston, by Dr. John Thomas Morton. During the entire time that I was studying medicine in Toronto I only saw one such operation.

At the Middlesex Hospital I observed the skilful work of Bland Sutton. He was a very human and understanding person, with great ability as a surgeon. No doubt he was aided by his early experi-

ence as a curator at the London Zoo, where he carried out postmortem examinations.

Once a week I went to a clinic at St. Bartholomew's, presided over by Mr. W. J. Walsham. All the medical staff participated in the clinic, which was conducted in the amphitheatre of the building. The patients were wheeled in and, before an audience of some 100 students, half a dozen doctors would discuss the diagnosis. This method we found most helpful in our work.

Percy Dean's outpatient clinics at The London Hospital attracted men from all over London: he gave promise of being one of the leading surgeons of England. Unfortunately, a few years later his career was ruined by drug addiction.

The outstanding student of our class was Wilfred Trotter. We were to meet again years later over an operating table. I assisted him when he operated on my old friend Lord Beaverbrook for actinomycosis in 1918.

I was so engrossed in studies that there was no time for outside diversions, although I did take a day off to attend the Derby, where I saw the horse Persimon, owned by the Prince of Wales (later King Edward VII), win. I also won £3. In 1895 the trial of Oscar Wilde created sensational news and I was fortunate in being able to get into the Old Bailey on the day that Sir Edward Carson cross-examined Wilde. I shall never forget Wilde's brilliant defence.

Another memory is that of attending a luncheon given by the College to Dr. Starr Jamieson upon his return to England after his abortive raid into the Transvaal in 1896. He had been a medical student at University College.

In the autumn of 1896 I went up for my final examination. It was the first year of Sir William MacCormac's presidency and he was one of the examiners. I still recall one of his questions. He was a tall man and, holding a truss high above his head, he asked me to tell him whether it was for an inguinal or a femoral hernia. When the results of the examination were made known, we who were fortunate met and were congratulated by each of the examiners in turn. My parchment bears the names of H. G. Howse, Howard Marsh, Jeremiah McCarthy, Edmund Owen, N. Davies Colley, Henry Morris, William Anderson and John Langton. Edward Trimmer signs it as secretary.

The opportunities I had and the experience gained in attending the clinics in the University College Hospital and the other London hospitals, and the teaching of eminent surgeons, were of tremendous value to me in my practice in Toronto. In the beginning I was so steeped in medical and surgical knowledge that when I first assumed my post as associate professor of clinical surgery in 1897, for a long time I needed no special preparation for my lectures.

I was the second Canadian to obtain the Fellowship of the Royal College of Surgeons of England. The diploma is my most treasured possession.

THE CANADIAN MEDICAL ASSOCIATION
JOURNAL
LE JOURNAL DE
L'ASSOCIATION MÉDICALE CANADIENNE

published weekly by

THE CANADIAN MEDICAL ASSOCIATION

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TEACHING AND LEARNING MEDICINE

OF RECENT years much has been spoken and written of methods of teaching medicine and producing teachers of medicine. The environment in which the student can achieve his grounding in the basic and preclinical sciences has been provided in a satisfactory and steadily improving manner by the universities. In contrast, little attention has been directed to continuing development of the equally necessary environment in which the student, by his own effort, can acquire clinical knowledge and skill. In most medical schools in Canada today the teaching unit of an affiliated hospital, where the patient comes under the care of the team of staff physician-resident-intern-clinical clerk, has provided a teaching environment of a kind never before equalled in excellence and now considered essential to medical education. In the past the population of such teaching units has consisted of the indigent sick. The increase in prepaid medical plans, the introduction of hospital insurance, and now the very evident increased interest of governments in health matters, all point to the likely disappearance of the indigent sick. What, then, is to provide a replacement for the patients in the teaching unit? Are such units really necessary to the teaching of medicine in Canada? If so, how can they be retained?

The consideration of the historical background of such problems often provides an understanding which may save costly errors if its lessons are appreciated and applied. The lesson to be learned in this instance is such as can hardly be ignored.

In the 6th century B.C. the efforts of the Aesclepiadae began the transfer of medicine from the realm of the supernatural to that of natural science. This period in world history is marked by the first great upsurge in intellectual achievement throughout the then-known world. In Greece, the teaching of Pythagorus, the mathematician, resulted in the development of the Pythagorean Brotherhood. In India, Buddha was propounding the philosophy

which was to provide for the spiritual needs of millions throughout ensuing generations and was to persist to this day. In China, Lao Tse and later Confucius held sway. Indeed, not from this time till the Renaissance was there to be a single period of 100 years when anything approaching such advance occurred as in this remarkable century. The teaching of medicine at the temples of Aesculapius was accomplished by the observation and recording of the symptoms, signs and natural history of disease in those who came to the temple to beseech the aid of the god. This is the first recorded example of "bedside" teaching. Such teaching of medicine continued through the Grecian age, but by the beginning of the Christian era an increasing amount of dogma was beginning to appear. While the writings of Galen represent the peak of recorded Greek medicine, they also marked the beginning of the dogmatic teaching which was to persist for nearly 1500 years.

Throughout the Middle Ages medical knowledge was passed on in the monasteries by the labours of many monks copying, synopsisizing and translating the works of Galen and a few others. Throughout this period bedside teaching ceased and original thought in medicine, as in other spheres of intellectual activity, came to a standstill. Indeed, had it not been for the efforts of Arabic physicians, medicine would have regressed even more during this period.

In the 10th century A.D. there began at Salerno a medical school, celebrated ever since as the first to begin the revival of Greek and Arabic medicine in Europe. It is interesting to note that the development of this medical school preceded by over a century that of the first universities in which the study and teaching of the humanities came to reign supreme and so continue to this day. Although at first medicine was barely tolerated by the universities, its advances from this time on have paralleled those of the university.

The development of the basic sciences of physics, chemistry, and biology, and the preclinical sciences of anatomy, physiology, and pathology led to the recognition that a knowledge of them was a requisite to the study of medicine. By the latter 19th century in Germany and Austria, and by the early 20th century in Great Britain and North America, full-time teachers appointed by the universities had been established, first in the pre-clinical and later in the clinical departments. The appointment of full-time teachers in the Johns Hopkins Medical School in the early years of this century and the report of Abraham Flexner in 1910 of his survey of medical schools throughout the United States, demonstrated clearly the need for the association of medical schools with the universities, the need for bedside teaching, and the necessity for full-time teachers in the clinical subjects.

In Canada the appointment of Duncan Graham as the first full-time Professor of Medicine marked the beginning of a trend which has developed in

a healthy manner, combining the appointment of increasing numbers of full-time teachers with the continued encouragement of those most valuable and little rewarded members of clinical departments, that dedicated group of physicians, the part-time teachers. The medical schools have developed with the universities with which they are associated, the standards of teaching in the pre-clinical and basic sciences have progressively improved, and since 1930 the education of the clinical teacher has been fostered by the efforts of the Royal College of Physicians and Surgeons of Canada.

The present era marks the greatest upsurge in scientific achievement the world has ever known. One has only to consider briefly the amazing advances which the last 50 years have provided in medicine to realize that developments in this smaller field have paralleled those of the larger. Pre-clinical teaching is at a higher level than ever before. The clinical teacher in Canada today is better equipped to correlate basic science with clinical medicine than at any time in the history of medicine. The hospital facilities, where the teaching unit has been developed to the full, provide a better environment for learning than has been available at any other time in recorded history.

It remains to be seen whether the next 50 years will be years of continued advance or whether they will mark the beginning of a decline such as occurred in the middle ages. Review of what has gone before indicates clearly that in the 6th century B.C., at the time of the Renaissance and in the past 50 years, there have been great forward surges in medicine. At these times teaching by experiment and observation in the sciences and at the bedside in the clinical subjects has predominated—dogmatic teaching has been minimal.

Despite the lessons of history, in certain parts of continental Europe and South America a reversion to didactic teaching is apparent. In these areas large classes are taught by lecture and demonstration, and little or no opportunity is provided for the student to learn by experiment and observation or at the bedside. In parts of Canada, shrinkage in the numbers of "public ward" patients has given rise to the use of private patients for teaching. While in some places this has been done in such a manner as to retain the true spirit of the teaching unit—the principle of graded responsibility under supervision—in others there has been a tendency to teach only by demonstration. It is therefore apparent that the teaching of clinical medicine in the western world could very quickly deteriorate; indeed, in some countries it has already done so.

To ensure the maintenance or improvement of the present standard of medical education and hence of medical care to the people of Canada, it is essential to provide a continuing supply of well-motivated students of high intellectual capacity, adequate numbers of well-trained teachers, and a proper environment in which the student can learn.

Today the greatest threat to medical education is the possible loss of the teaching unit—the environment in which the clinical subjects can best be learned. Its retention is essential and not difficult. It demands a new source of patients which is not based on financial need. Rather, it must depend upon patients entering the teaching unit and placing themselves in the care of the team of staff physician-resident-intern-clinical clerk because of their confidence that thus they will receive the best medical care available.

R.C.D.

PROBLEMS IN MEDICAL STUDENT RECRUITMENT

THE American Medical Association's 1959 Report on Medical Education in the United States and Canada emphasized the importance of an increasing number of medical graduates to provide for the care of this continent's rapidly growing population. This report further stated that "The basic and urgent concern is that all estimates indicate a need for expansion of educational facilities in medicine in a brief period, which far exceeds any expansion of such facilities that has occurred in a similar period during modern times." Developments in the subsequent year have in no way alleviated this concern.

Whether or not a shortage of physicians in Canada can be predicted for the future is not so apparent from information available at present. The prospect in this regard, however, is sufficiently disturbing to warrant the creation of a responsible agency to maintain continuous study of the optimum number of medical graduates required from year to year to meet Canadian needs. Among its other functions such an agency could investigate the degree to which existing medical schools might expand their facilities to provide the desired number of graduates; it could also study the indications for construction of additional medical schools and explore those factors which would influence their most advantageous location. It is encouraging to note that the need to create such an agency to assume these functions has been recognized by the Association of Canadian Medical Colleges in its plans for the establishment of a permanent Canadian Secretariat on Medical Education, a project deserving of the full co-operation and support of the profession.

Aside from all considerations of adequacy of medical education facilities, however, there arises the major problem of recruiting sufficient numbers of students to take advantage of these facilities and ensure the provision of an adequate number of graduates to meet Canada's medical manpower needs.

In this regard it is of some concern to note that in recent years over one-third of new medical registrants in Canada are graduates of non-Canadian medical schools. It seems unlikely that this flow of new physicians from other countries will con-

tinue indefinitely. Meanwhile, the latest statistics on registrations of students in Canadian medical schools are beginning to show a trend which suggests that in future we may expect a drop in the total number of medical graduates in any one year and for some years to come. The current decline in total numbers registered results from two factors: a decrease in the number admitted to medical courses and a disconcertingly large number of withdrawals from these courses after admission. The fact that over 40% of those who withdrew from our medical schools in the past year did so for other than academic reasons, is further food for sobering thought.

Analysis of those factors responsible for the decline in medical school admissions, and the rise in withdrawals for non-academic reasons, would be a major undertaking presenting many difficult and complex problems, but a study of this nature might well be highly rewarding. The information so obtained could conceivably have a far-reaching influence on future patterns of medical student recruitment, on the methodology of medical teaching and on the financing of medical training. Such a study would seem to be a particularly apt project for the Canadian Secretariat on Medical Education if and when that body becomes established.

Lacking the factual data that a formal study could provide, it is difficult to define with accuracy the relative importance of factors which influence today's youth in deciding whether or not they should choose medicine as a career. Certain factors with unfavourable influence on this decision have been mentioned many times. These include the length of training involved, the extent of financial sacrifice imposed by the cost of this training, the widespread belief that medical courses are particularly difficult from the academic point of view, and the relatively greater glamour that now surrounds careers in engineering, the physical sciences, and other branches of technology. Looming over these considerations is the uneasy feeling that the public image of the modern doctor has become more than slightly tarnished, if one can rely on the information

promulgated by various news media and the periodical press. As the Member for Port Arthur said before Parliament on June 23 last, "the old charm and aura which hung over the medical profession have disappeared, and I think disappeared remarkably fast." (The Member also took it upon himself to express, on the public's behalf, many even less flattering opinions of the medical profession. He opined that recruitment in this field is the responsibility of the Minister of National Health and Welfare and stated that if the profession itself will not come up with the answers to this problem, the Minister should find some of his own.)

There can be no doubt that physicians themselves can and do play no small part in influencing today's youth in the choice of medicine as a career. Unfortunately there are apparently some doctors who tend to impress young people with the undesirable features of their profession, including the uncertainty of its future status in the light of current political trends. Despite the sincerity of motives underlying these opinions, it is a simple and inescapable fact that the provision of the best medical care for Canadians by the doctor of tomorrow is a vital concern of the doctor of today.

To assist in portraying the pros and cons of the varied careers offered by the profession, the Association's Public Relations Department last year prepared a brochure entitled "Doctors of Tomorrow".* Supplies of the brochure are again available on request for all Canadian secondary schools, medical school deans, medical libraries and the C.M.A. Divisions. As in the past, high-school principals will be requested to discuss the contents of this booklet with all senior high-school classes.

The Public Relations Department also draws attention to the fact that copies of this brochure are available, on request, at C.M.A. and Division offices for all individual physicians who wish to do their part in the all-important work of recruiting into the profession the best of our nation's high-school graduates.

*See page 739 of this issue.

PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

MEDICAL SCHOOL AND HOSPITAL

The wave of increased interest in the subject of medical education, evidenced in the United States by the publication of the Carnegie report, and in Canada by the discussions over the Roddick Bill, both at Ottawa and in the various provinces, brings forward once more the subject of the relationships that should subsist between the medical school and the hospital. The simplest solution is that now being accepted by Toronto; namely, that a medical school should possess its own hospital; or conversely, as has happened by natural evolution in London, that the hospital should develop its own medical school. But although the simplest, both of these plans have their defects. A large city may already possess important hospitals, and the establishment of another, complete in all departments, may

tend to over-hospitalization with all its attendant abuses. Its establishment, too, is apt to cause a certain amount of opposition on the part of those other hospitals and their staffs, so that their material is largely lost to the school, and, as we shall proceed to point out, the work accomplished by these other hospitals becomes lowered in quality. On the other hand, the establishment of a school in connexion with each hospital means, as in London, the bringing into being of an excess of struggling, imperfectly equipped institutions, labouring under the imputation that funds contributed for the care of the sick are being unjustifiably diverted to other purposes. In other words, the first of these plans, even where conditions are favourable, must be entered into with extreme precautions, so that existing hospitals be not alienated.—Excerpt from editorial, *Canadian Medical Association Journal*, 1: 350, April 1911.

LETTER TO THE EDITOR

"THE MEDICAL LETTER ON DRUGS AND THERAPEUTICS"

To the Editor:

The recent editorial by Dr. W. B. Spaulding on "The Medical Letter on Drugs and Therapeutics" (*Canad. M. A. J.*, 84: 439, 1961) is highly commendable and emphasizes the difficult problem created by the flood of new drugs that are presented to the practising physician. I would agree that there is an urgent need for brief, accurate and up-to-date information concerning new drugs. While such a service is highly desirable, it must be pointed out that it is extremely difficult to provide, since a small editorial staff is not likely to be well versed in the therapeutic value of all newly introduced therapeutic agents.

Stimulated by Dr. Spaulding's editorial, a perusal of issue No. 54, Volume 3, No. 3, dated February 3, 1961, of *The Medical Letter on Drugs and Therapeutics*, taken at random, has revealed certain inaccuracies. On page 11 in the discussion on the treatment of gout, it is written "the use of colchicine (one to three 0.5 mg. tablets three times a day) as prophylaxis against acute attacks is advisable during the early months of treatment with uricosuric drugs". I should like to point out that if the maximum recommended dose were administered as prophylaxis on a continuing basis as suggested in this Medical Letter, viz. three 0.5 mg. tablets three times a day, the results might well be calamitous. It would be a rare patient who could tolerate this amount of colchicine on a continuous basis without manifesting serious toxic manifestations, and, one would hope, a rare physician who would dare to prescribe such an amount. Colchicine is a very toxic drug and has been reported to

cause death with as little as 7 mg. in a single course. The standard accepted dose used in prophylaxis should not exceed one, two or at most three 0.5 mg. tablets a day, and even then most patients will not tolerate three tablets daily.

On page 12 of the aforementioned issue of the Medical Letter it is stated "most diuretics, mercurial as well as thiazide, decrease uric acid excretion and may even precipitate gout". It is well known that the thiazide group of drugs decrease uric acid excretion by the kidney, but one wonders where the information concerning mercurial diuretics has been obtained. It was shown by Berglund¹ and by Coombs² that mercurial diuretics do not cause retention of uric acid but in fact have uricosuric properties. The statement concerning diuretics, therefore, is quite inaccurate as far as the mercurial diuretics are concerned.

I point out these inaccuracies merely to emphasize the difficulty in obtaining authentic information concerning the therapeutic value of drugs, whether they be new or old, and it would seem that the publication *The Medical Letter on Drugs and Therapeutics* does not overcome the problem. The publication concerned also contains other inaccuracies, but these were of lesser importance.

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MEDICAL NEWS IN BRIEF

ABSENT UMBILICAL ARTERY

A total of 133 cases of absence of one umbilical artery were reported and analyzed by Bourne and Benirschke (*Arch. Dis. Child.*, 35: 534, 1960). There was a slightly increased incidence of the abnormality among the younger primigravidas and the older multiparas, but the incidence did not increase with parity. A total of 59 multiparous women had had 155 previous pregnancies from which only 107 (69%) infants survived. A total fetal loss of 48 (31%) is excessive and indicates that these women, as far as reproduction is concerned, belong to a high-risk group. Hydramnios occurred 19 times; all of the infants suffered from major congenital abnormalities and only two survive, as a result of surgical treatment for esophageal atresia. There is, at present, no evidence to show that the condition is hereditary. The incidence of absent umbilical artery is 1% of all births and 7% of twin pregnancies.

The fetal loss in a consecutive series was 20% but in the total of 133 instances the fetal loss was 65 (58%). Fourteen of the 48 infants who survive are known to suffer from congenital abnormalities.

Major congenital abnormalities were present in 58 (51%) of the infants; only 40 (35%) were developmentally normal and a further 15 (40%) were thought to suffer from a congenital anomaly. The abnormalities were mostly multiple and not confined to any particular system. Obstructive lesions or atresia of the gastrointestinal and urinary tract were relatively common. Fifty-six (59%) of the 95 viable infants of known weight were premature by weight at birth, but the average weight of all infants at birth was less than normal. The placenta was considered to be abnormal in 32 (29%) of the pregnancies.

Routine examination of the cut end of the umbilical cord at delivery might result in early diagnosis of some of the associated congenital abnormalities.

ARRESTED CHRONIC
ULCERATIVE COLITIS

Based on records from the Lahey Clinic, a study of 73 patients with ulcerative colitis, who had been free of symptoms for more than five years, was undertaken by Kiefer and Gialanella (*Gastroenterology*, 39: 687, 1960) with the aim of eliciting factors related to the favourable course of the disease in this group. The most common feature was the moderate severity of the disease with completely absent disability in 21 cases and intermittent disability in 43. Although severe acute attacks were not uncommon, marked and constant disability was present in only seven cases. Fulminating ulcerative colitis with massive destruction of the mucosa was not observed in this group of patients but several had extensive involvement of the colon.

At least 10 patients had fever and anemia, three had arthralgia and three, erythema nodosum. Six patients had perianal fistulas and 22 manifested some form of allergy. All of these complications and systemic manifestations were experienced before sustained remission occurred. No particular therapeutic regimen was recognizable to which the successful outcome of the disease could have been credited. Although remission in this group of patients had lasted five years or longer, permanent arrest of their disease could not be predicted. Two patients had exacerbations of active colitis after six and seven years of remission, respectively. Three persons in the group died between the ages of 33 and 46 years, from cancer of the colon, though they had been asymptomatic for many years.

ENTEROCOCCAL ENDOCARDITIS

A report of 19 cases of enterococcal endocarditis with long-term follow-up data was made by Koenig and Kaye (*New England J. Med.*, 264: 257, 1961). Most of the men in the series were elderly and most of the women were in the childbearing age group. The most common known portal of entry was the genitourinary tract, and the most common underlying cardiac lesion was rheumatic heart disease. In five patients no specific cardiac diagnosis could be made, and in one of these no cardiac murmur was audible. Onset of congestive heart failure before institution of antibiotic therapy was found to be an ominous prognostic sign. Three of the four patients with congestive heart failure were the only treatment failures. Delay in the initiation of adequate therapy also seemed to decrease the chances for successful outcome. The clinical and laboratory findings of enterococcal endocarditis were similar to those observed in bacterial endocarditis caused by penicillin-sensitive streptococci.

Despite the relative *in vitro* resistance of enterococci to penicillin and streptomycin, these two agents given simultaneously yielded a high rate of cure. Although enterococci may be highly sensitive to broad-spectrum antibiotics, therapy with these agents was unsatisfactory. There was no constant relation between the *in vitro* resistances of the micro-organisms to penicillin or streptomycin and the final outcome of therapy using these antibiotics.

Although large amounts of streptomycin or dihydrostreptomycin were used, only two patients (both of whom received dihydrostreptomycin) had evidence of serious eighth-nerve toxicity manifested by hearing loss. The development of eighth-nerve symptoms appeared

to be related to age, occurring in patients 49 years of age or older.

Sixteen patients (84%) were cured, with no bacteriologic relapses. All these patients were treated with a regimen that included combined penicillin and streptomycin therapy. One of the patients considered a treatment failure received no streptomycin, and another was given only two short courses of combined penicillin and streptomycin.

Ten patients, or 53% of the original series, were still alive five months to 13 years after treatment, with a mean survival time of five and five-tenths years. The six deaths during the follow-up period occurred at an average of four years after therapy. The 84% cure rate and the long-term follow-up survival rate compare favourably with those reported for penicillin-sensitive streptococcal endocarditis. Until newer therapeutic regimens are shown to be at least as effective as and less toxic than combined penicillin and streptomycin therapy, these two drugs in combination should remain the regimen of choice in enterococcal endocarditis.

VESICULAR STOMATITIS
AND EXANTHEM

Magoffin and co-workers (*J. A. M. A.*, 175: 441, 1961) report an unusual illness of children characterized in a typical case by slight malaise, fever and discrete vesicular lesions in the mouth and on the hands and feet, which occurred in many areas of California and possibly other western states during the summer of 1959. In 33 cases observed in their study the oral lesions resembled those of herpangina, but the syndrome was distinguishable from herpangina by the frequent presence of lesions on the buccal mucosa and tongue and also, in eight cases, by the presence of a maculovesicular exanthem.

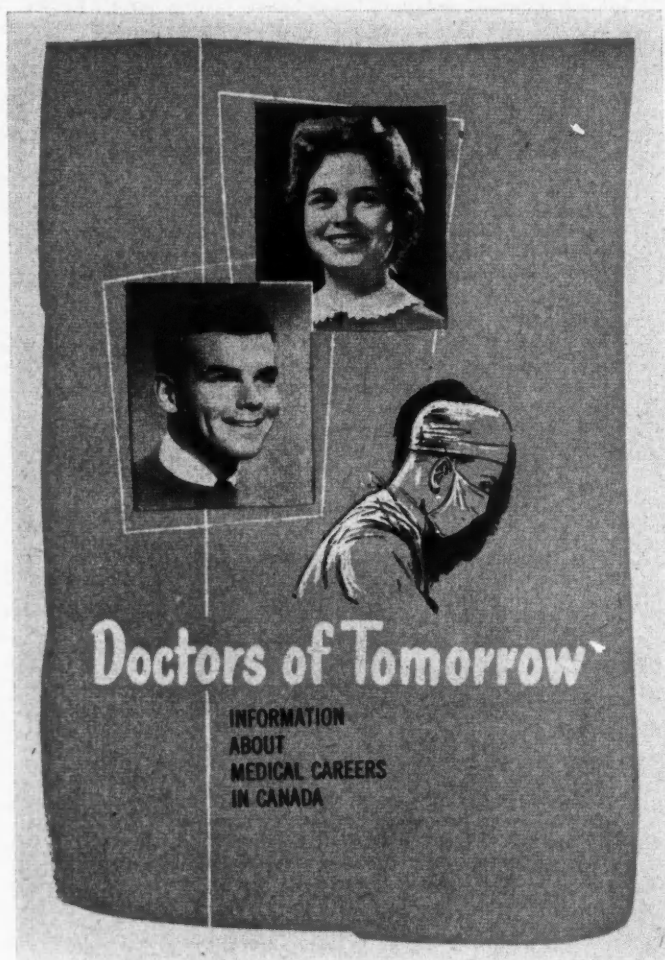
Evidence of infection with a Coxsackie virus, group A, type 16, was found in 11 of 15 cases in which viral studies were carried out. This syndrome has not been reported previously in the United States, but a localized outbreak of a similar disease, likewise attributed to Coxsackie A16 virus, occurred in Toronto in 1957 (*Canad. M. A. J.*, 79: 615, 1958).

INTRAVENOUS ABDOMINAL
AORTOGRAPHY

The Robb-Steinberg method of intravenous angiography by the rapid injection of concentrated organic iodides and precisely timed roentgenography has been standard for over 20 years. Modification of the method by the simultaneous, rapid injection of contrast media into both arms (total dose, 1 c.c. per kg. of body weight divided equally into two syringes) enabled Steinberg and Moore (*J. A. M. A.*, 175: 446, 1961) to visualize the abdominal aorta and peripheral vascular tree in over 300 patients.

Prediction of the time of opacification of the abdominal aorta was accurately achieved by a preliminary circulation time determination with dilute sodium dehydrocholate. Inexpensive special needle stopcock units and syringes (12 gauge) and the use of standard roentgen equipment make the technique of abdominal aortography and peripheral arteriography readily available in the ordinarily well-equipped radiology department.

(Continued on advertising page 31)



ASSOCIATION NOTES

MEDICAL RECRUITMENT: "DOCTORS OF TOMORROW"

All available evidence suggests that enrolment in Medicine at Canadian universities is declining and that withdrawals for academic and other reasons are unnecessarily high. A number of factors may be adduced to explain the recession in popularity of a career in medicine but the consequences of this trend are serious for the future health services of the nation. It is evident that we must compete for the attention of the brightest boys and girls when they are considering their life's work. To this end the brochure "Doctors of Tomorrow", the pages of which are reproduced herewith, has been distributed very widely through the secondary schools.

Physicians called upon to take part in Career Days in schools may find this booklet useful as a basis for their talks and they may desire to distribute copies to interested students. Members may obtain a reasonable supply in English or French without charge by writing to The Canadian Medical Association, 150 St. George Street, Toronto 5.

This booklet has been prepared primarily for secondary school students, interested in obtaining information on medicine as a career.

Academic requirements, fees, and bursaries are referred to in general terms; if a student desires specific information on these subjects, he should write to the University of his choice. All letters should be addressed to the Dean of the Faculty of Medicine.

CANADIAN SCHOOLS OF MEDICINE

Dalhousie University Halifax, N.S.	DR. C. B. STEWART
Laval University Quebec, P.Q.	DR. JEAN-BAPTISTE JOBIN
University of Montreal Montreal, P.Q.	DR. WILFRED BONIN
McGill University Montreal, P.Q.	DR. LLOYD G. STEVENSON
University of Ottawa Ottawa, Ontario	DR. J. J. LUSHER
Queen's University Kingston, Ontario	DR. G. H. ETTINGER
University of Toronto Toronto, Ontario	DR. J. A. MACFARLANE
University of Western Ontario London, Ontario	DR. JAMES B. COLLIF
University of Manitoba Winnipeg, Manitoba	DR. LENNOX G. BELL
University of Saskatchewan Saskatoon, Saskatchewan	DR. J. W. MACLEOD
University of Alberta Edmonton, Alberta	DR. WALTER C. MACKENZIE
University of British Columbia Vancouver, B.C.	DR. JOHN F. MCCREARY

(Your family doctor and vocational guidance teacher may also be helpful in explaining and interpreting this brochure.)



THE CANADIAN MEDICAL ASSOCIATION
150 St. George Street Toronto 5, Ontario



Medicine As A Career

There are many reasons which prompt the student to consider medicine as a career. Possibly the greatest is an inherent desire to know more about science and its application to health and disease, associated with a genuine interest in serving others.

Medicine as a career provides limitless opportunities for the prevention and treatment of illness, and for the rehabilitation of patients. Today, the doctor of medicine, through team work with fellow practitioners, and various technical assistants, has access to a concentration of skills, and services never before attained.

The physician now has a vast number of vocations open to him. Following a period of post-graduate study, he can enter the field of general practice, or qualify for a specialty of his choice. He can dedicate his life to research or laboratory work. He can teach. He can join one of the government medical services in Canada or abroad. He can join the medical services of the armed forces. He can enter the expanding field of medical administration.

Living in the atomic age, we can anticipate new and exciting endeavours in the field of medicine. Irrespective of the area of medicine which the graduate physician enters he can be assured of a full and satisfying career.

The road to success, however, is not an easy one in any field of endeavour, and medicine is no exception. In the words of Sir William Osler, one of the great Canadian physicians of the century, "the master word in medicine is work. It is a little word, but fraught with momentous consequences. If you can write it on the table of your heart, and bind it upon your forehead." This immortal physician also said, "the practice of medicine is an art, not a trade; a calling, not a business; a calling in which your heart will be exercised equally with your head."

WHAT ARE THE ADVANTAGES OF A *Career in Medicine?*

Probably the greatest advantage of a career in medicine is the ever present opportunity to relieve pain—prevent disease—and restore health. It is the personal satisfaction one receives in helping others. Also high on the list of advantages is the challenge to make a contribution to medical science, or to play an important part in the raising of health standards within one's own community.

A feature, which is unique in the field of medicine, is the large number of allied opportunities which are open to the student doctor. As an example, the doctor of medicine today can find plenty of scope in the field of public health and industrial medicine; to prevent and control disease; to provide a better environment in which to live and work; to improve nutrition and sanitation; and to promote health education and accident prevention.

Evidence of the physician's expanding role is seen almost everywhere. The modern physician is also playing an important part in the atomic era. Many products of atomic fission are now used in medical diagnosis and treatment, and man's entrance into outer space will no doubt result when the solutions are found to various medical and other problems, which will enable him to travel safely in space.

The annual earnings of doctors may appeal to some who are considering medicine as a career, as the average annual income of doctors is considerably above the Canadian average.



What are the disadvantages?

There are, of course, disadvantages as well as advantages in any career that one wishes to pursue. Preparation for a career in medicine is long and fairly expensive. This, however, is not beyond the ability of the average student, nor the finances of one who sincerely wishes to make a real contribution to society.

Owing to the extent of his medical education, the physician's income does not commence as soon as in some professions. Consequently, his earning period may be somewhat shortened. Although most medical doctors make a good living, they must practise continuously in order to do so. If a physician is not on a salary basis, or employed where pension plans are available, he must make provision for his own income after retirement. In addition, the demands of practice may interfere with his home, recreation, and other non-medical interests. The modern trend however, is for doctors to arrange regular time off through a reciprocal agreement with other physicians. Some doctors also work in groups which enable them to have regular recreation and holidays.



WHAT IS THE AVERAGE INCOME FOR MEDICAL DOCTORS?

A doctor's income varies considerably, depending on the type of work he is doing, and how he is remunerated. Although some doctors earn as little as \$6,000 per year, a few earn over \$25,000. In 1956, the latest year for which statistics are available, the average income for Canadian doctors in private practice was slightly over \$13,000 per year.



WHAT ARE THE *Academic requirements?*

There are twelve universities in Canada in which the complete course of undergraduate medical education is carried on. As indicated by the following, the academic requirements of the Faculties of Medicine of Canadian universities vary a little.

University of British Columbia, Vancouver, B.C.

Three years of pre-medical study at an approved Faculty of Arts and Science; four years in medicine; degree of M.D.

University of Alberta, Edmonton, Alberta

Senior matriculation; two years in Arts and Science; four years in medicine; degree M.D.

University of Saskatchewan, Saskatoon, Saskatchewan

Grade XII, Saskatchewan (Senior Matriculation); two or more full years in the College of Arts and Science; four years in medicine; degree M.D.

University of Manitoba, Winnipeg, Manitoba

Junior Matriculation; three years pre-medical in the Faculty of Arts and Science; four years in medicine; degree M.D.

University of Western Ontario, London, Ontario

Grade XIII, two years in the Faculty of Arts and Science; four years in medicine; degree M.D.

University of Toronto, Toronto, Ontario

Grade XIII; two years pre-medical (or degree in Arts and Science) four years in medicine; degree M.D.

Queen's University, Kingston, Ontario

Grade XIII; two years pre-medicine in the Faculty of Medicine, or a degree in Arts and Science; four years in medicine; degree M.D.

University of Ottawa, Ottawa, Ontario

Grade XIII; two years pre-medical (or degree in Arts and Science); four years in medicine; degree M.D.



McGill University, Montreal, P.Q.

Junior Matriculation, satisfactory completion of three years in Arts and Science (B.A. or B.Sc.) four years in medicine; degree M.D.C.M.

University of Montreal (P.Q.), Montreal

B.A. degree, five years in medicine including one year of internship; degree M.D.

Laval University, Quebec, P.Q.

B.A. degree, five years in medicine including one year of junior rotating internship; degree M.D.

Dalhousie University, Halifax, N.S.

Junior matriculation; three years pre-medical in a Faculty of Arts and Science; five years in medicine (final year a hospital internship); degree M.D.

NOTE: Students desiring more detailed information should write to the university of their choice. Letters should be addressed to the Dean of the Faculty of Medicine.

AN EXAMPLE FOR ENTRANCE REQUIREMENTS TO ONE MEDICAL SCHOOL IS AS FOLLOWS:

The candidate having submitted his application to the University Registrar, should forward his school leaving certificate, showing that he has obtained the required standing in the following subjects:

English Science (Chemistry and Physics)	Mathematics (Algebra, Geometry, Trigonometry)	One of French, German, Greek, Italian, Latin, Spanish
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It is also recommended that the student complete Latin up to Grade XII. An average of 60% in at least nine papers is desirable.

Are there other requirements?

An applicant for admission to the first university year will probably be required to submit a certificate of good character; and in some schools the student must be seventeen years of age on or before the first of October of the year in which he proposes to register.

Any student who is planning to take his medical course outside of Canada, should first contact the medical licensing authorities in the province where he plans to practise, in order to ensure that his course of study is acceptable.

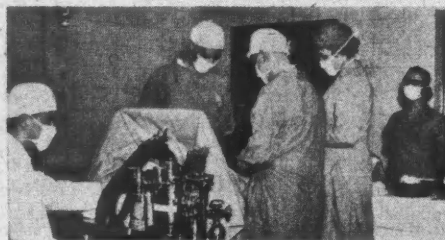
As the overall character of the physician plays an important role in his career, the potential doctor should carefully review certain personal qualifications which are considered essential. The following characteristics may serve as a guide. The potential doctor should

- Have emotional stability
- Be a student of nature—with an enquiring mind
- Possess sound judgment, and the ability to make decisions
- Have an understanding of human relationships

THE COURSE OF STUDY

In the main, a course in medicine consists of two to three years in Arts and Science where subjects such as physics, organic and inorganic chemistry, and biology are studied. This pre-medical course is then followed by four to five years study in medical subjects and during this period the doctor in training will concentrate on anatomy (the structure of the body) physiology (its various functions) and biochemistry (the chemistry of the body). In the final period of training the medical student spends much time in the wards and clinics of the hospitals, and under the guidance of older physicians and medical teachers, he learns the nature of disease, how to detect its presence and how to assist in its cure.

The medical student finally graduates at the age of 24 to 26 years with a degree, usually Doctor of Medicine, which allows him to be called doctor, and to place the initials M.D. after his name.



GRADUATE AND POST-GRADUATE TRAINING

When a doctor qualifies for his M.D. he must take one year of rotating internship to gain practical experience before he is eligible for a license to practice. This is a requirement of the medical licensing authorities in each province.

Some universities include in their fifth and final year, a rotating internship before the M.D. degree is granted.

During the first year of interne training, the student usually makes a decision whether he will enter general practice or qualify as a specialist in a particular branch of medicine.

A minimum of two years of interne or residency training is usually required to fit a doctor for general practice; and four to five years for a specialist. During these periods, the young doctor receives a modest stipend for his services.

The following is a list of the medical and surgical specialties which may be considered for post-graduate study.

SPECIALTIES

Medical		Surgical	
Anaesthesia	Pathology	Neurosurgery	Otolaryngology
Bacteriology	Physical Medicine	Obstetrics and/or	Plastic Surgery
Dermatology	and Rehabilitation	Gynecology	Surgery (General)
Internal	Psychiatry	Ophthalmology	Thoracic Surgery
Medicine	Public Health	Orthopaedic Surgery	Urology
Neurology	Radiology (Diagnostic)		
Paediatrics	Radiology (Therapeutic)		

WHAT ARE THE

Students' expenses?

There is a variation of fees in each school of medicine. However, an approximate average yearly cost for the pre-medical years, would be between \$350 and \$450. During the medical course the average fee would be around \$600 for each year, exclusive of living expenses, books, etc.

In addition to the above, there are other general university and undergraduate society fees which amount to approximately \$30 (this will vary slightly from school to school).

Living Expenses

Board and lodging will vary in each province. An average weekly rate would be about \$20.

Medical Books, instruments and microscope

Premedical years, per year	\$50.00
Medical years, per year	\$75.00
Instruments	\$160.00
Microscope	\$140.00—\$268.00

A limited number of bursaries and scholarships are available through each of the medical schools in Canada. In many instances, however, financial assistance cannot normally be considered until a student has established his competence by completion of at least one year of medical study. Post-graduate bursaries and fellowships are also available in most medical fields.

Additional copies of this booklet will be made available upon request to:

Public Relations Department
The Canadian Medical Association
150 St. George Street
Toronto 5, Ontario



PAGES OUT OF THE PAST: FROM THE JOURNAL OF FIFTY YEARS AGO

MEDICAL SCHOOL AND HOSPITAL

The association of a medical school with a hospital maintains that hospital at the highest level of efficiency in every respect, so far as the funds of that hospital permit; it ensures that the brightest and most capable practitioners of the locality compete for positions on the staff, that the medical board has a personal knowledge of the most promising among the student body, and thus can select the best resident staff, best not merely in their book knowledge and in their power of passing examinations, but also in professional spirit and attitude towards the patients; ensures that the nursing staff is alert and well trained, that the diagnosis of individual cases is most critical and most thorough, that the treatment and care of the patient in the hospital is the best possible because subjected to constant observation.

That this is so is proved by the experience of all countries. The great hospitals of the world, those that have made their name and fame by the greatness of the results achieved in them, have one and all been hospitals connected with medical schools. We cannot recall a single exception, save, it may be urged, the Mayos' hospital at Rochester. But there is the constant attendance of some forty visiting surgeons year in, year out, men from distant parts of the United States and Canada, and from Europe, who have come to learn the methods and techniques of these surgeons. —Excerpt from editorial, *Canadian Medical Association Journal*, 1: 350, April 1911.

as at January 31, 1961
(previous lists are superseded by this list)

Baker Memorial Sanatorium—3(g)	Calgary, Alberta
Colonel Belcher Hospital (D.V.A.)— 3 and 6	“ “
Aberhart Memorial Sanatorium—3(g)	Edmonton, Alta.
Charles Cammell Indian Hospital—3(g)	“ “

SPECIALTY OF PATHOLOGY

Calgary General Hospital—3(a)	Calgary, Alberta
Holy Cross Hospital—3(d)	" "
Provincial Laboratory of Public Health (Southern Branch)—3(k)	Calgary, Alberta
Edmonton General Hospital—4	Edmonton, "
Misericordia Hospital—4(p)	" "
Royal Alexandra Hospital—4	" "
University of Alberta Hospital—8	" "
St. Michael's General Hospital—3	Lethbridge, "
Royal Columbian Hospital—3(d)	New Westminster, B.C.
Shaughnessy Hospital (D.V.A.)— 5 and 6	Vancouver, B.C.
St. Paul's Hospital—4(p)	" "
Vancouver General Hospital—8	" "
Royal Jubilee Hospital—3(a)	Victoria, "
St. Boniface Hospital—4	St. Boniface, Man.
Children's Hospital—3(g)	Winnipeg, "
Deer Lodge Hospital (D.V.A.)— 5 and 6	" "
Salvation Army Grace Hospital—3(n)	" "
Winnipeg General Hospital—8	" "
Moncton Hospital—3(r)	Moncton, N.B.
Lancaster Hospital (D.V.A.)—2 and 6	Saint John, "
Saint John General Hospital—4(a)	" "
St. John's General Hospital—4(p)*	St. John's, Nfld.
Camp Hill Hospital (D.V.A.)— 3(1) and 6	Halifax, Nova Scotia
Victoria General Hospital—8	" "
Regional Laboratory—3(g)	Fort William, Ont.
Hamilton General Hospitals—4	Hamilton, Ontario
Mountain Sanatorium—2	" "
St. Joseph's Hospital—3	" "
Hôtel-Dieu Hospital—3	Kingston, "
Kingston General Hospital—8	" "
Regional Laboratory—3(g)	London, "
Victoria Hospital—8	" "
Westminster Hospital (D.V.A.)— 3 and 6	" "
Ottawa Civic Hospital—8	Ottawa, "
Ottawa General Hospital—8	" "
Central Laboratory—3(g)	Toronto, "
Hospital for Sick Children—4(p)	" "
New Mount Sinai Hospital—3(d)	" "
Princess Margaret Hospital—4(p) (Ontario Cancer Institute)	" "
St. Joseph's Hospital—3	" "
St. Michael's Hospital—8	" "
Sunnybrook Hospital (D.V.A.)— 5 and 6	" "
Toronto East General and Orthopaedic Hospital—3	" "
Toronto General Hospital—8	" "
Toronto Western Hospital—8	" "
Wellesley Hospital—3(d)	" "
Women's College Hospital—3(m)	" "
Toronto Hospital for Tuberculosis—2	Weston, "
Metropolitan General Hospital—4(p)	Windsor, "
Hôtel-Dieu Saint-Vallier—3(k)	Chicoutimi, Quebec
Hôpital du Sacré-Cœur—3(n)	Montreal, "
Hôpital Maisonneuve—5	" "
Hôpital Notre-Dame—8	" "
Hôpital Saint-Luc—4	" "
Hôpital Sainte-Justine—3(g)	" "
Hôtel-Dieu de Montréal—8	" "
Jewish General Hospital—5(d)	" "
Montreal Children's Hospital—3(g)	" "
Montreal General Hospital—8	" "
Queen Elizabeth Hospital—3(a)	" "
Queen Mary Veterans Hospital (D.V.A.)—5 and 6	" "
Reddy Memorial Hospital—3	" "
Royal Victoria Hospital—8	" "
St. Mary's Hospital—3(f)	" "
L'Hôpital Laval—3(1)	Quebec, "
Hôpital St-François-d'Assise—3	" "
Hôpital de l'Enfant-Jésus—4(r)	" "
Hôpital du Saint-Sacrement—8	" "
L'Hôpital-Dieu de Québec—8	" "
Hôpital Général St-Vincent-de-Paul—3	" "
Hôpital Général de Verdun—3	Sherbrooke, "
Regina General Hospital—3(i)	Verdun, "
Regina Grey Nuns' Hospital—3	Regina, Sask.

Saskatoon City Hospital—4	Saskatoon, Sask.
St. Paul's Hospital—4(q)	" "
University Hospital—8	" "

SPECIALTY OF PHYSICAL MEDICINE AND REHABILITATION

University of Alberta Hospital—4	Edmonton, Alberta
Workmen's Compensation Board Rehabilitation Clinic—3(a)	" "
G. F. Strong Rehabilitation Centre—3	Vancouver, B.C.
Shaughnessy Hospital (D.V.A.)— 3 and 6	" "
Group Approval—five hospitals—7(b)	London, Ontario
Sunnybrook Hospital (D.V.A.)— 3 and 6	Toronto, "
Toronto East General and Orthopaedic Hospital—3(a)	" "
Toronto General Hospital—8	" "
Toronto Western Hospital—3(a)	" "
W. C. B. Hospital and Rehabilitation Centre—3(g)	Malton, "
Hôpital Pasteur—7(c)	Montreal, Quebec
Montreal General Hospital—8	" "
Queen Mary Veterans Hospital (D.V.A.)—3 and 6	" "
Rehabilitation Centre—7(c)	" "
La Clinique de Réhabilitation de Québec, Inc.—7(g)	Quebec, "
L'Hôpital Laval—7(g)	" "
University Hospital—8	Saskatoon, Sask.

SPECIALTY OF PLASTIC SURGERY

Hospital for Sick Children—3(d)	Toronto, Ontario
St. Michael's Hospital—3(a)	" "
Sunnybrook Hospital (D.V.A.)— 5 and 6	" "
Toronto East General and Orthopaedic Hospital—3	" "
Toronto General Hospital—8	" "
Toronto Western Hospital—3(a)	" "
Hôpital Notre-Dame—8	Montreal, Quebec
Hôpital Sainte-Justine—3(g)	" "
Hôtel-Dieu de Montréal—3(a)	" "
Montreal Children's Hospital—3(g)	" "
Montreal General Hospital—8	" "
Queen Mary Veterans Hospital (D.V.A.)—5 and 6	" "
Royal Victoria Hospital—8	" "

SPECIALTY OF PSYCHIATRY

The policy of the College relative to granting approval to hospitals for advanced graduate training in psychiatry has been revised. Approval will now be given to hospitals only when their training program is organized under university or similar auspices. The deans of medical schools across Canada are aware of these requirements and have been asked to assist psychiatric hospitals and clinics in reorganizing their training programs.

The four-year period of training in psychiatry is being organized as an integrated whole by those persons responsible for psychiatry in the various provinces. No one hospital or institution will serve the objective, but rather a series of appointments in a variety of hospitals, clinics and other settings will be required.

Enquiries regarding the status of a specific hospital should be directed to the College Office, but in the interim period while training programs are being arranged, approval to the following hospitals remains unchanged.

Provincial Guidance Clinic—3(k)	Edmonton, Alberta
University of Alberta Hospital—4	" "
Provincial Mental Hospital—3	Ponoka, "
Provincial Mental Hospital—3	Essondale, B.C.
Shaughnessy Hospital (D.V.A.)— 5 and 6	Vancouver "
Vancouver General Hospital—3(a)	" "
Hospital for Mental Diseases—3	Brandon, Manitoba
Hospital for Mental Diseases—3	Selkirk, "
Deer Lodge Hospital (D.V.A.)— 5 and 6	Winnipeg, "

Winnipeg Psychopathic Hospital—8	Winnipeg, Manitoba	Sunnybrook Hospital (D.V.A.)—	Toronto, Ontario
Provincial Hospital—3(k)	Campbellton, N.B.	5 and 6	
Provincial Hospital—3	Saint John, "	Toronto East General and Orthopaedic	
Hospital for Mental and		Hospital—3	" "
Nervous Diseases—3	St. John's, Nfld.	Toronto General Hospital—8	" "
Nova Scotia Hospital—3(k)	Dartmouth, N.S.	Toronto Western Hospital—8	" "
Camp Hill Hospital (D.V.A.)—		Wellesley Hospital—3(o)	" "
3 and 6	Halifax, "	Hôtel-Dieu St-Vallier—4	Chicoutimi, Quebec
Children's Hospital—3	" "	Hôpital du Sacré-Cœur—3(a)	Montreal, "
Victoria General Hospital—3	" "	Hôpital Maisonneuve—4	" "
Ontario Hospital—3	Hamilton, Ontario	Hôpital Notre-Dame—8	" "
Hôtel-Dieu Hospital—7(f)	Kingston, "	Hôpital Saint-Luc—4(e)	" "
Kingston General Hospital—7(f)	" "	Hôpital Sainte-Justine—3(g)	" "
Ontario Hospital—3	" "	Hôpital Ste-Jeanne-d'Arc—3(a)	" "
Ontario Hospital—3	London, "	Hôtel-Dieu de Montréal—8	" "
St. Joseph's Hospital—3	" "	Institut du Radium—3	" "
Victoria Hospital—3	" "	Jewish General Hospital—3(a)	" "
Westminster Hospital (D.V.A.)—	" "	Montreal Children's Hospital—3(h)	" "
5 and 6	" "	Montreal General Hospital—8	" "
Ottawa Civic Hospital—7(e)	Ottawa, "	Montreal Neurological Institute—3	" "
Ottawa General Hospital—7(e)	" "	Queen Elizabeth Hospital—4(d)	" "
Ontario Hospital—3(g)	St. Thomas, "	Queen Mary Veterans Hospital	" "
Hospital for Sick Children—3(g)	Toronto, "	(D.V.A.)—5 and 6	" "
Ontario Hospital, 999 Queen St. W.—3(k)	" "	Reddy Memorial Hospital—3	" "
Sunnybrook Hospital (D.V.A.)—	" "	Royal Victoria Hospital—8	" "
5 and 6	" "	St. Mary's Hospital—3(d)	" "
Toronto Psychiatric Hospital—8	" "	Hôpital de l'Enfant-Jésus—8	Quebec, "
Hôpital Maisonneuve—3(a)	Montreal, Quebec	Hôpital du Saint-Sacrement—8	" "
Hôpital Notre-Dame—3	" "	Hôpital Ste-Foy (D.V.A.)—6 and 7(d)	" "
Hôpital Sainte-Justine—3(g)	" "	Hôpital St-François d'Assise—3	" "
Hôtel-Dieu de Montréal—8	" "	L'Hôtel-Dieu de Québec—8	" "
Institut Albert Prévost—3	" "	Postgraduate Course in Radiology, under	
Jewish General Hospital—3(k)	" "	auspices of Laval University,	
Montreal Children's Hospital—3(g)	" "	ten hospitals—7(d)	" "
Montreal General Hospital—8	" "	Hôpital Général St-Vincent-de-Paul—3	Sherbrooke, "
Queen Mary Veterans Hospital	" "	Hôpital Général de Verdun—3(a)	Verdun, "
(D.V.A.)—5 and 6	" "	Regina General Hospital—4(d)	Regina, Sask.
Royal Victoria Hospital—8	" "	Regina Grey Nuns' Hospital—4(d)	" "
Hôpital St-Michel-Archange et la		St. Paul's Hospital—4(e)	Saskatoon, Sask.
Clinique Roy-Rousseau—8	Quebec, "	Saskatoon City Hospital—3	" "
Ste-Anne's Hospital (D.V.A.)—	Ste-Anne-de-Belle-	University Hospital—8	" "
5 and 6	vue, Quebec		
Verdun Protestant Hospital—3	Verdun, Quebec		
Saskatchewan Hospital—3(j)	North Battleford,		
	Sask.		
Regina General Hospital—3(g)	Regina, "		
University Hospital—8	Saskatoon, "		
Saskatchewan Hospital—3(j)	Weyburn, "		

SPECIALTY OF DIAGNOSTIC RADIOLOGY

Calgary General Hospital—3	Calgary, Alberta
Royal Alexandra Hospital—4(o)	Edmonton, "
University of Alberta Hospital—8	" "
Shaughnessy Hospital (D.V.A.)—	
5 and 6	Vancouver, B.C.
St. Paul's Hospital—4(e)	" "
Vancouver General Hospital—8	" "
Royal Jubilee Hospital—3(a)	Victoria, "
St. Boniface Hospital—4	St. Boniface, Man.
Children's Hospital—3(h)	Winnipeg, "
Deer Lodge Hospital	" "
(D.V.A.)—5 and 6	" "
Winnipeg General Hospital—8	" "
Moncton Hospital—3(a)	Moncton, N.B.
Saint John General Hospital—4(d)	Saint John, N.B.
St. John's General Hospital—3(c)	St. John's, Nfld.
Canadian Forces Hospital—3(c)	Halifax, N.S.
Group Approval—four hospitals—7(a)	" "
Victoria General Hospital—8	" "
Hamilton General Hospitals—3	Hamilton, Ontario
Canadian Forces Hospital—3(k)	Kingston, "
Hôtel-Dieu Hospital—3	" "
Kingston General Hospital—8	" "
St. Joseph's Hospital—4	London, "
Victoria Hospital—8	" "
Westminster Hospital	" "
(D.V.A.)—3 and 6	" "
Ottawa Civic Hospital—8	Ottawa, "
Ottawa General Hospital—5(a)	" "
Hospital for Sick Children—3(h)	" "
New Mount Sinai Hospital—3(c)	Toronto, "
Princess Margaret Hospital—2(b)	" "
St. Joseph's Hospital—3	" "
St. Michael's Hospital—8	" "

SPECIALTY OF THERAPEUTIC RADIOLOGY

University of Alberta Hospital—8	Edmonton, Alberta
British Columbia Cancer Institute—8	Vancouver, B.C.
St. Paul's Hospital—4(e)	" "
Royal Jubilee Hospital—4(d)	Victoria, "
St. Boniface Hospital—4	St. Boniface, Man.
Winnipeg General Hospital—8	Winnipeg, "
Saint John General Hospital—3(j)	Saint John, N.B.
Victoria General Hospital—8	Halifax, Nova Scotia
Hamilton General Hospitals—3	Hamilton, Ontario
Kingston General Hospital—8	Kingston, "
Victoria Hospital—8	London, "
Ottawa Civic Hospital	
(Ottawa Clinic, Ontario Cancer	
Foundation)—8	Ottawa, "
Ottawa General Hospital	
(General Hospital Division of the	
Ottawa Clinic, Ontario Cancer	" "
Foundation)—3	" "
Princess Margaret Hospital	
(The Ontario Cancer Institute)—8	Toronto, "
Toronto General Hospital—3(s)	" "
Toronto Western Hospital—3	" "
Metropolitan General Hospital	
(Windsor Clinic Ontario Cancer	
Foundation)—4(d)	Windsor, "
Hôpital Notre-Dame—8	Montreal, Quebec
Hôpital Saint-Luc—3	" "
Hôpital Sainte-Jeanne d'Arc—3(a)	" "
Hôtel-Dieu de Montréal—8	" "
Institut du Radium—8	" "
Montreal General Hospital—8	" "
Queen Elizabeth Hospital—3	" "
Royal Victoria Hospital—8	" "
Hôpital de l'Enfant-Jésus—8	Quebec, "
Hôpital du Saint-Sacrement—8	" "
Hôpital St-François-d'Assise—3	" "
L'Hôtel-Dieu de Québec—8	" "
Postgraduate Course in Radiology,	
under auspices of Laval University,	" "
ten hospitals—7(d)	" "

(Continued on page 749)

Regina Grey Nuns' Hospital
(Allan Blair Memorial Clinic)—4(d) Regina, Sask.
University Hospital
(Saskatoon Cancer Clinic)—8 Saskatchewan, Sask.

SPECIALTY OF SURGERY (GENERAL SURGERY)

Colonel Belcher Hospital (D.V.A.)—
3 and 6 Calgary, Alberta
Edmonton General Hospital—3 Edmonton, "
Misericordia Hospital—3(a) "
Royal Alexandra Hospital—4(k) "
University of Alberta Hospital—8 "
Crease Clinic of Psychological
Medicine—3(g) Essondale, B.C.
Shaughnessy Hospital (D.V.A.)—
5 and 6 Vancouver, "
St. Paul's Hospital—3(f) "
Vancouver General Hospital—8 "
Victoria Veterans' Hospital (D.V.A.)—
3(g) and 6 Victoria, "
St. Boniface Hospital—4 St. Boniface, Man.
Children's Hospital—3(h) Winnipeg, "
Deer Lodge Hospital (D.V.A.)—
5 and 6 " "
Winnipeg General Hospital—5 " "
Lancaster Hospital (D.V.A.)—3 and 6 Saint John, N.B.
Saint John General Hospital—3(j) "
St. John's General Hospital—3(d) St. John's, Nfld.
Camp Hill Hospital (D.V.A.)—5 and 6 Halifax, N.S.
Canadian Forces Hospital—3(e) "
Victoria General Hospital—8 "
Hamilton General Hospitals—4(n) Hamilton, Ontario
Canadian Forces Hospital—3(e) Kingston, "
Hôtel-Dieu Hospital—3(d) "
Kingston General Hospital—8 "
St. Joseph's Hospital—3(a) London, "
Victoria Hospital—8 "
Westminster Hospital (D.V.A.)—
5 and 6 " "
Ottawa Civic Hospital—3 Ottawa, "
Ottawa General Hospital—5(b) "
Hospital for Sick Children—3(h) "
New Mount Sinai Hospital—3(e) Toronto, "
St. Joseph's Hospital—3 " "
St. Michael's Hospital—8 " "
Sunnybrook Hospital (D.V.A.)—
5 and 6 " "
Toronto East General and
Orthopaedic Hospital—3 " "
Toronto General Hospital—8 " "
Toronto Military Hospital—3(e) " "
Toronto Western Hospital—8 " "
Wellesley Hospital—4(o) " "
Women's College Hospital—3(p) " "
Toronto Hospital for Tuberculosis—
2(d) Weston, "
Hôtel-Dieu St-Vallier—4 Chicoutimi, Quebec
Hôpital du Sacré-Cœur—3(e) Montreal, "
Hôpital Maisonneuve—8 " "
Hôpital Notre-Dame—8 " "
Hôpital Saint-Luc—4 " "
Hôpital Sainte-Justine—3(h) " "
Hôtel-Dieu de Montréal—8 " "
Jewish General Hospital—4(f) " "
Montreal Children's Hospital—3(h) " "
Montreal General Hospital—8 " "
Queen Mary Veterans Hospital
(D.V.A.)—5 and 6 " "
Reddy Memorial Hospital—3(a) " "
Royal Victoria Hospital—8 " "
St. Mary's Hospital—4(n) " "
Hôpital de l'Enfant-Jésus—8 Quebec, "
Hôpital du Saint-Sacrement—8 " "
Hôpital Ste-Foy (D.V.A.)—5 and 6 " "
Hôpital St-François-d'Assise—3 " "
L'Hôtel-Dieu de Québec—8 " "
Hôpital Général St-Vincent-de-Paul
—3(e) Sherbrooke, "
Hôpital Général de Verdun—4(a) Verdun, "
Regina General Hospital—3(o) Regina, Sask.
St. Paul's Hospital—3(o) Saskatoon, Sask.
Saskatoon City Hospital—3(o) " "
University Hospital—8 " "

SPECIALTY OF THORACIC SURGERY

Charles Camsell Indian Hospital—3(g) Edmonton, Alberta
University of Alberta Hospital—8 "
Vancouver General Hospital—8 Vancouver, B.C.
Willow Chest Centre—3(g) "
Manitoba Sanatorium—3(g) Ninette, Manitoba
St. Boniface Sanatorium—3(g) St. Vital, "
Nova Scotia Sanatorium—3(g) Kentville, N.S.
Mountain Sanatorium—3(g) Hamilton, Ontario
Kingston General Hospital—3(a) Kingston, "
Beck Memorial Sanatorium—3(g) London, "
Toronto General Hospital—8 Toronto, "
Toronto Hospital for Tuberculosis—3 Weston, "
Hôpital du Sacré-Cœur—3(g) Montreal, Quebec
Hôpital Notre-Dame—3(a) "
Hôpital Sainte-Justine—3(g) "
Hôtel-Dieu de Montréal—3(a) "
Institut de Cardiologie de Montréal
—3(g) "
Montreal Children's Hospital—2(d) "
Queen Mary Veterans Hospital
(D.V.A.)—5 and 6 " "
Royal Edward Laurentian Hospital—3 " "
(Montreal and Laurentian Divisions)
Royal Victoria Hospital—8 " "
L'Hôpital Laval—3(g) Quebec, "
University Hospital—8 Saskatoon, Sask.

SPECIALTY OF UROLOGY

University of Alberta Hospital—8 Edmonton, Alberta
Shaughnessy Hospital (D.V.A.)—
5 and 6 Vancouver, B.C.
Vancouver General Hospital—8 "
Deer Lodge Hospital (D.V.A.)—
5 and 6 Winnipeg, Manitoba
Winnipeg General Hospital—8 "
Saint John General Hospital—3(j) Saint John, N.B.
Camp Hill Hospital (D.V.A.)—5 and 6 Halifax, Nova Scotia
Victoria General Hospital—8 " "
Hamilton General Hospitals—3(q) Hamilton, Ontario
Kingston General Hospital—3 Kingston, "
Victoria Hospital—3 London, "
Westminster Hospital (D.V.A.)—3 " "
Ottawa Civic Hospital—3 Ottawa, "
Hospital for Sick Children—2(a) Toronto, "
St. Joseph's Hospital—3(a) " "
St. Michael's Hospital—8 " "
Sunnybrook Hospital (D.V.A.)—5 and 6 " "
Toronto General Hospital—8 " "
Toronto Western Hospital—8 " "
Hôtel-Dieu St-Vallier—3(a) Chicoutimi, Quebec
Hôpital Notre-Dame—8 Montreal, "
Hôtel-Dieu de Montréal—8 " "
Jewish General Hospital—3(a) " "
Montreal Children's Hospital—2(d) " "
Montreal General Hospital—8 " "
Queen Mary Veterans Hospital
(D.V.A.)—5 and 6 " "
Royal Victoria Hospital—8 " "
L'Hôtel-Dieu de Québec—3 Quebec, "
University Hospital—8 Saskatoon, Sask.

NUMERICAL REFERENCES

- Part-time training—A maximum period of four months' training in which the remainder of the year is spent in resident training in an institution with approval for at least one year in the specialty concerned.
- Six months' training.
 - Six months' training—limited to one trainee.
 - Six months' training—training is integrated as part of a university scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
 - As 2(b) but training limited to one trainee.
 - Six months' training—not to be substituted for six months of the required two years of resident training in the specialty concerned in an approved hospital.
 - Six months' training—provisional. (College Office will provide details on request.)

3. One year's training.

- (a) One year's training—limited to one trainee.
- (b) One year's training—limited to one trainee, provided the second year of the specialty training is taken in a university centre.
- (c) One year's training—limited to one trainee—not to be substituted for one of the two required years of resident training in the specialty concerned in an approved hospital.
- (d) One year's training—limited to two trainees.
- (e) One year's training—limited to two trainees; not to be substituted for one of the two required years of resident training in the specialty concerned in an approved hospital.
- (f) One year's training—limited to three trainees.
- (f)* Same as 3(f) but not to be substituted for one of the two required years of resident training in the specialty concerned.
- (g) One year's training—not to be substituted for one of the two required years of resident training in the specialty concerned in an approved hospital.
- (h) One year's training, only six months of which may apply to the two years of required residency training in the specialty.
- (i) One year's training, provided the second required year in the specialty is spent in a university teaching hospital.
- (j) One year's training. For Certification, one further year of training is approved; this second year not to be substituted for one of the two required years of resident training in the specialty concerned in an approved hospital.
- (k) One year's training—training is integrated as part of university scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
- (l) One year's training—Clinical Pathology only.
- (m) One year's training—Pathological Anatomy or Pathological Anatomy and Clinical Pathology.
- (n) One year's training—Combined training in Pathological Anatomy and Clinical Pathology.
- (o) One year's training—limited to one trainee. Training is integrated as part of a university scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
- (p) One year's training—limited to one trainee—not to be substituted for one of the two required years of resident training in the specialty concerned in an approved hospital. The year will be accepted as the necessary year of resident training in General Surgery for the Fellowship examination in Surgery as modified for Obstetrics and Gynaecology, and the Certification examinations in Obstetrics and Gynaecology.
- (q) One year's training—not more than six months of which can be spent in the integrated general surgical training program.
- (r) One year's training—Combined training in Pathological Anatomy and Clinical Pathology—limited to one trainee.
- (s) One year's training in Therapeutic Radiology, provided that this training is taken in conjunction with the training at the Princess Margaret Hospital, Toronto.

4. Two years' training.

- (a) Two years' training—limited to one trainee in each year.
- (b) Two years' training—limited to two trainees in each year.
- (c) Two years' training—limited to three trainees in each year.
- (d) Two years' training on condition that trainee will take an additional year of training in the specialty in an institution where training in the basic sciences may be obtained.
- (e) Two years' training—in a program of three years' training in Diagnostic and/or Therapeutic Radiology, the extra year of training must be spent at another approved institution. In a program of two years in each of the subjects for double qualification one year must be spent in each of the subjects at another approved institution, preferably at a university department.
- (f) Two years' training—limited to a total of four trainees at any one time.
- (g) Two years' training—for a total of three trainees at any one time.

- (g) *Same as 4(g) but only one year of which may apply to the two required years of resident training in the specialty concerned.
- (h) Two years' training—training is integrated as part of a university scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
- (i) Two years' training—limited to one trainee in each year. Training is integrated as part of a university scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
- (j) Two years' training—limited to two trainees in each year. Training is integrated as part of a university scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
- (k) Two years' training—optional number of trainees in the first year and one trainee in the second year.
- (l) Two years' training for one trainee only.
- (m) Two years' training for two trainees, one senior trainee, and one junior trainee.
- (n) Two years' training, the second year of which cannot be substituted for one of the two minimum required years in the specialty concerned in an approved hospital.
- (n)* As in 4(n) but limited to total of four trainees.
- (o) Two years' training—two trainees in the first year and one in the second year.
- (p) Two years' training in Pathology—one year Pathological Anatomy, one year Clinical Pathology.
- (p)* As in 4(p) but limited to two trainees per year.
- (q) Two years' training in Pathology—one year Pathological Anatomy, one year Clinical Pathology—training is integrated as part of a University scheme of postgraduate instruction and carries the approval of the Head of the University Department concerned.
- (r) Two years' training in Pathological Anatomy.

5. Three years' training.

- (a) Three years' training—limited to one trainee in each year.
- (b) Three years' training—limited to two trainees in each year.
- (c) Three years' training—limited to two trainees each in the first and the second year, and one trainee in the third year—a total of five trainees at one time.
- (d) Three years' training—one year Clinical Pathology, two years Pathological Anatomy.

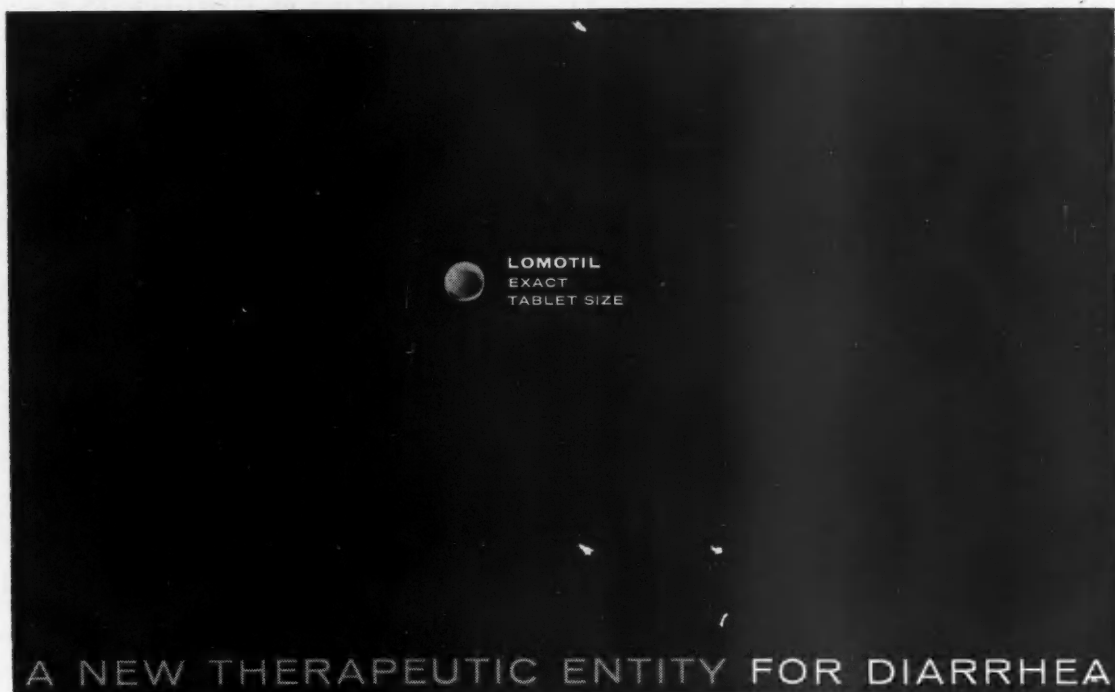
6. Approval of training in Department of Veterans Affairs hospitals.

In D.V.A. hospitals there are no children, few and in some instances no female patients, and a lack of certain types of disease among male patients. For these reasons a D.V.A. hospital cannot provide a complete course of advanced graduate training in any specialty. D.V.A. hospitals are approved for advanced graduate training in medical and surgical specialties as specified for each hospital. While the approval of a D.V.A. hospital may be for two or three years of training, candidates who spend more than one year in resident training at a D.V.A. hospital are reminded that one of the two minimum required years of resident training in the specialty concerned must be spent in an approved civilian hospital.

7. Group approval.

- (a) Group Approval—Diagnostic Radiology—Halifax, Nova Scotia.
Camp Hill Hospital, Children's Hospital, Halifax Infirmary and Halifax Tuberculosis Hospital—for full training in Diagnostic Radiology provided training in basic science is taken concurrently at Dalhousie University.
- (b) Group Approval—Physical Medicine and Rehabilitation—London, Ontario.
Westminster Hospital, Victoria Hospital, War Memorial Children's Hospital—Polio Centre, St. Mary's Hospital and Woodeden Crippled Children's Centre, London—one year's training in Physical Medicine and Rehabilitation, provided that time spent at Westminster Hospital is restricted to three or four months.
- (c) Group Approval—Physical Medicine and Rehabilitation—Montreal, Quebec.

(Continued on page 752)



LOMOTIL®

SELECTIVELY LOWERS PROPULSIVE MOTILITY

LOMOTIL represents a major advance over the opium derivatives in controlling the propulsive hypermotility occurring in diarrhea.

Precise quantitative pharmacologic studies demonstrate that Lomotil controls intestinal propulsion in approximately $\frac{1}{11}$ the dosage of morphine and $\frac{1}{20}$ the dosage of atropine and that therapeutic doses of Lomotil produce few or none of the diffuse untoward effects of these agents.

Clinical experience in 1,314 patients amply supports these findings. Even in such a severe test of antidiarrheal effectiveness as the colonic hyperactivity in patients with colectomy, Lomotil is effective in significantly slowing the fecal stream.

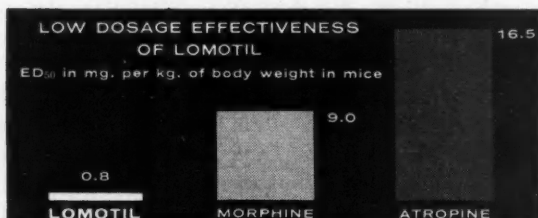
Whenever a paregoric-like action is indicated, Lomotil now offers positive antidiarrheal control ... with safety and greater convenience. In addition,

as a nonrefillable prescription product, Lomotil offers the physician full control of his patients' medication.

PRECAUTION: While it is necessary to classify Lomotil as a narcotic, no instance of addiction has been encountered in patients taking therapeutic doses. The abuse liability of Lomotil is comparable with that of codeine. Patients have taken therapeutic doses of Lomotil daily for as long as 300 days without showing withdrawal symptoms, even when challenged with nalorphine.

Recommended dosages should not be exceeded.

DOSAGE: The recommended initial dosage for adults is two tablets (5 mg.) three or four times daily, reduced to meet the requirements of each patient as soon as the diarrhea is controlled. Maintenance dosage may be as low as two tablets daily. Lomotil, brand of diphenoxylate hydrochloride with atropine sulfate, is supplied as unscored, uncoated white tablets of 2.5 mg., each containing 0.025 mg. ($\frac{1}{2400}$ gr.) of atropine sulfate to discourage deliberate overdosage.



EFFICACY AND SAFETY of Lomotil are indicated by its low median effective dose. As measured by inhibition of charcoal propulsion in mice, Lomotil was effective in about $\frac{1}{11}$ the dosage of morphine hydrochloride and in about $\frac{1}{20}$ the dosage of atropine sulfate.

Subject to Federal Narcotic Law.

Descriptive literature and directions for use available in Physicians' New Product Brochure No. 81 from

G. D. SEARLE & CO. OF CANADA LTD.
247 QUEEN ST., E., BRAMPTON, ONT.

Hôpital Pasteur and Rehabilitation Centre, Montreal—two years' training in Physical Medicine and Rehabilitation—limited to two trainees in each year—on condition that trainees obtain some additional training outside these two institutions.

- (d) Postgraduate Course in Radiology under auspices of Laval University, Quebec, Quebec.

Course to include radiological facilities of the following ten hospitals: Hôpital Ste-Foy, Hôtel-Dieu de Québec, Hôpital du Saint-Sacrement, Hôpital de l'Enfant-Jésus, Hôpital St-Michel-Archange (Mastai); Hôpital Laval (Ste-Foy), Hôpital St-François-d'Assise, Jeffery Hale Hospital, Hôtel-Dieu St-Vallier (Chicoutimi) and Hôpital St-Joseph (Trois-Rivières).

Conditions: Each trainee must be registered under the training scheme of Laval University. Length of time in larger hospitals not to exceed one year; in the small hospitals not more than six months. Each trainee must spend one year in another approved centre in Canada or abroad in his particular specialty. Those training in both Diagnostic Radiology and Therapeutic Radiology must spend one year in each specialty at another recognized centre.

- (e) Psychiatric Training Program under auspices of University of Ottawa, Ottawa, Ontario—three years' approval; one year at Ottawa Civic Hospital, one year at Ottawa General Hospital and one year at other centres as arranged by the Professor of Psychiatry.

- (f) Psychiatric Training Program under auspices of Queen's University, Kingston, Ontario—two years' approval for training arranged by the Professor of Psychiatry at the following hospitals: Kingston General Hospital; Hôtel-Dieu Hospital, Kingston; Ontario Hospital, Kingston; Mental Hygiene Clinic, Kingston, and Children's Hospital associated with Kingston Sunnyside Home for Disturbed Children.

- (g) Group Approval—Hôpital Laval, Quebec, and La Clinique de Réhabilitation de Québec, Inc.—one year's training in Physical Medicine and Rehabilitation.

- (h) Group Approval—Kingston General Hospital, Ottawa Civic Hospital and Ottawa General Hospital—each approved for one year of training in Ophthalmology for one trainee as part of a three-year joint training program in Ophthalmology.

8. Approved for full training.

- (a) Approved for full training—limited to two trainees.

BOOK REVIEWS

CLINICOPATHOLOGICAL CONFERENCES OF THE MASSACHUSETTS GENERAL HOSPITAL. Edited by Benjamin Castleman and H. Robert Dudley. 295 pp. Illust. Little, Brown and Company, Boston; J. B. Lippincott Company, Montreal, 1960. \$12.50.

This volume is a compilation of 50 cases dealing with problems in internal medicine and selected from amongst the large number of clinicopathological conferences previously published at weekly intervals over the past 25 years in the *New England Journal of Medicine*.

To the many members of the profession who are avid addicts to these weekly exercises, the publication of this volume (which this reviewer hopes will be the forerunner of many) will prove a welcome boon.

There are many ways of expanding one's medical knowledge but the C.P.C. has proved the most painless and one of the most fruitful, especially for the practitioner whose time is limited. Humans, being what they are, tend to retain newly acquired knowledge more readily if associated with pleasurable experiences. The ideal C.P.C. based on deductive reasoning has a Sherlock Holmes or Perry Mason-like flavour which thus amply fulfils this prerequisite. With their unparalleled tradition in this field, the Massachusetts General Hospital group and their associates have developed the art of the C.P.C. to an enviable level which is second to none.

Editors other than Castleman and Dudley might well have selected other cases on the basis of personal interest. Those cases which have been honoured by this publication cut a broad swath across our current concepts and it is suggested that there are few doctors who could read through any random one of these cases without adding to their knowledge and thus becoming better physicians.

Not the least appealing part of these reports are the addenda, some of which are appended as much as 24 years after the original presentation. Many of these fill the gaps which existed at the time of the original

discussion, but others emphasize that recently developed laboratory and other aids are not always necessary for diagnosis.

If a reviewer must offer some criticism to justify his existence, this one would regret the paucity of neurological problems. The general format, printing, reproductions and indexing are excellent. The lessons to be gleaned from this unique volume will be of value to anyone capable of learning.

CLINICAL PHYSIOLOGY. VOLUME I: ELECTROLYTE BALANCE, WATER METABOLISM, RENAL FUNCTION, GASTRO-INTESTINAL FUNCTION, HEPATIC FAILURE. Kathleen E. Roberts, San Francisco. 266 pp. Illust. The Filmer Brothers Press, San Francisco, 1960.

This volume is the first of a proposed series on clinical physiology. It is not intended by the author to be a reference work, but, rather, an oversimplification of the subject for the novice so that pathological aberrations may be more meaningful and treatment more rational.

This book deals with water and electrolyte metabolism, and gastrointestinal, hepatic and renal physiology. Physiological principles and changes which occur as a result of disease are covered. Practical therapeutic measures are discussed, and there are chapters on intravenous therapy and electrolyte alterations in surgery.

It is obvious that the author has considerable experience and familiarity with her subject. The writing is clear, and is enhanced by a number of useful figures and tables. However, in the opinion of the reviewer, the author has not achieved her purpose. This is not a book for the novice; considerably more detail is presented than would be appreciated by the beginner. This volume can be read with much more profit by clinicians who already have a basic understanding of physiology and wish to refresh their knowledge.

(Continued on page 754)

CONNAUGHT

PENICILLIN-FREE POLIOMYELITIS VACCINE

POLIOMYELITIS VACCINE

Poliomyelitis Vaccine as prepared by the Connaught Medical Research Laboratories is free of penicillin, as are also the following combined preparations:

DPT POLIO VACCINE

Diphtheria and Tetanus Toxoids
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For the immunization of Infants and Pre-school children ONLY. NOT for school children, adolescents or adults.

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combined with
Poliomyelitis Vaccine

For REINFORCING doses only in school children. NOT for older adolescents or for adults.

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Tetanus Toxoid and
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For the immunization of adults against both tetanus and poliomyelitis.



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UNIVERSITY OF TORONTO
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*Established in 1914 for Public Service through
Medical Research and the development of
Products for Prevention or Treatment of Disease.*

MODERN TRENDS IN CARDIAC SURGERY. Edited by H. R. S. Harley. 282 pp. Illust. Butterworth & Co. (Canada) Ltd., 1960. \$14.00.

It is a courageous undertaking to edit a book on cardiac surgery at this particular time when the picture is changing so rapidly. A matter of one year may see not only the introduction of new techniques but the application of new principles in cardiac surgery.

British writers have always been lucid and clear, and this book is no exception. It is a neat, well-organized and easily read text without too much detail. It is written in the manner of a textbook; each section is written by a British authority, a good deal of space being devoted to surgical anatomy, clinical features and diagnosis. It would be more easily read if some of the sections made greater use of illustrations. This is particularly true of the description of operative techniques where the amount of detail varies from section to section.

The book is small and thus represents a very easy reference. Its compactness is the result of obviously careful and thoughtful selection of topics of practical value. One might suggest that a section dealing with all the new techniques of investigation and another discussing the important function of intensive post-operative care units would provide completeness and clarity.

It is inevitable that during the time required to edit and publish such a book, some of the most recent developments in the field are missed, such as new open heart methods of treating acquired valvular disease and local deep hypothermia of the heart. However, until these techniques have been tested and tried this is not a serious omission in a reference text of this kind.

The editor has wisely not attempted to encompass too broad a scope. The volume is well proportioned and, as the introduction indicates, properly directed to the general practitioner. In spite of this there are some excellent sections, particularly the ones on extracorporeal circulation by Melrose and deep hypothermia by Drew, which are of interest to everyone, including the cardiac surgeon.

CONGENITAL MALFORMATIONS OF THE HEART. Vol. I, General Considerations. Revised ed. Helen B. Taussig. 204 pp. Illust. Harvard University Press, Cambridge, Mass.; S. J. Reginald Saunders and Company Limited, Toronto, 1960. \$5.20.

The long-awaited second edition of Dr. Taussig's "Congenital Malformations of the Heart" has now appeared in a new two-volume form. The first volume outlines how far careful clinical techniques and clear reasoning will carry the clinician toward an accurate diagnosis. Emphasis is placed on the physical examination and radiological and fluoroscopic study of the infant and child particularly, and the differences between these wee ones and adults.

The section on special methods is sparse but perfectly adequate to orient the reader-group to whom the book is directed. As an aid to the student and general practitioner, this volume is full of facts and practical knowledge gained from an unparalleled clinical experience in the field of congenital heart disease. Dr. Park's statement that Dr. Taussig has done for the clinician what Dr. Maude Abbott did for the pathologist is a fitting tribute to this book, which should be made available to all medical students, practitioners and medical libraries.

ANAEROBIC BACTERIOLOGY IN CLINICAL MEDICINE. A. Trevor Willis. 163 pp. Illust. Butterworth & Co. (Canada) Ltd., Toronto, 1960. \$6.00.

This book on the role of anaerobic micro-organisms in clinical medicine affords a detailed account of some aspects of this subject in Great Britain; it is however regrettable that the French bibliography is not thoroughly reviewed. A similar 600-page book "Biologie des Maladies dues aux anaérobies", written by Prévot in 1955, deals with the same subject as the present book, but is not mentioned by the author of this volume. Perhaps this fact accounts for the discrepancies between some techniques described in the book and the procedures accepted in continental Europe and in some Canadian laboratories. At any rate, the percentage of pathological specimens with demonstrable anaerobic microbes is apparently lower than that found by other authors, some of them Canadian: in this regard the percentage of 9% is at variance with much higher figures of 28% reported by other authors.

Despite these criticisms, the book is a valuable asset for the clinical laboratory. It is well written and its technical language is clear even for the non-specialist.

LAENNEC: HIS LIFE AND TIMES. Roger Kervran. 212 pp. Pergamon Press Inc., New York, London and Paris, 1960. \$3.50.

Not many medical men of note have acquired the romantic aura of René-Théophile-Hyacinthe Laennec. His brilliance in medicine, his struggle against illness, had as a setting both the picturesque and historic countryside of Brittany and, in the first years of his life the excesses and terrors of the Revolution. Dr. Kervran, his countryman and biographer, paints the background of the times and of his family in considerable detail, even if it is done rather jerkily; some of this effect is due perhaps to the translation.

However, the picture of the man himself emerges by degrees. The familiar impression of his masterly observation of facts and clear thinking is heightened by the details of his repeated disappointments in hospital and teaching appointments, as well as the hostility of some of his colleagues, Broussais in particular. Actually, he does not seem to have encountered as much violent early opposition to his work as there was, for example, in the case of Lister. As might be expected, recognition of his genius was more spontaneous outside of France. Within a short time of the appearance of the *Traité de l'Auscultation Médiate* (1819) it received the acclamation of Great Britain and Europe as well as of America, whence several came to study under him; amongst his many foreign visitors there was apparently "even a doctor from Newfoundland".

Not the least of his burdens was a father with a talent for wasting money only equalled by his instinct for always knowing on whom he could depend for help. His selfishness was never much below the surface of a whimsical gaiety; he might well have been the original of the childlike Harold Skimpole.

Only within the last two years of his life did Laennec know the happiness of marriage. He died in 1826, aged 45, of pulmonary tuberculosis, in the country surroundings to which he had always turned with such longing, and in whose history and culture he had been so deeply versed.

The book is a worthy tribute to one of the great men of our profession.

MEDICAL NEWS in Brief

(Continued from page 738)

EDUCATIONAL EXPENSES AND FINANCIAL SUPPORT OF AMERICAN MEDICAL STUDENTS

A comparative analysis reported by the Association of American Medical Colleges, of the results of recent independent studies of medical students' financial status and arts and science graduate students' financial status in the United States, reveals striking differences in both the costs to the students and the primary resources the students draw upon in financing a medical education as contrasted with arts and science graduate education.

The average direct educational cost (living costs excluded) to the medical student is about \$1000 a year, or \$4000 for four years of medical education. In contrast, the average graduate student pays about \$450 a year in direct educational costs, or \$1800 for four years of graduate education. Thus, the average medical student has to pay more than twice as much as the average graduate student for his education.

The medical student who receives stipend income from any source or combination of sources receives an average of about \$500 per year, or \$2000 during his four years of medical education. The arts and science graduate student who receives stipend income is provided with an average of \$2000 per year, or approximately \$8000 over a four-year period of Ph.D. training. Thus, if one combines the fact that the medical student, as contrasted with the graduate student, has to pay twice as much for his education at the same time that he receives one-fourth as much stipend income (if he receives such income), it becomes clear that there is an 8:1 fiscal ratio of income and expense working to persuade the college senior to enter graduate school rather than medical school.

The medical students use family help as their primary source of income to finance their education while the graduate students use stipend income—particularly that derived from research and teaching assistantships. Is the reason for this difference the differing socio-economic status of the families of the two groups of students? While the A.A.M.C. study and a second study conducted by the National

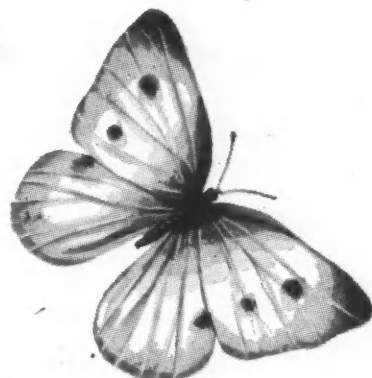
(Continued on page 30)



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Plexonal Forte provides peaceful, restful and refreshing sleep for your patients. Plexonal Forte acts rapidly, evenly and without causing side-effects or after-effects. Can be used over a prolonged period of time without loss of effectiveness. Habituation has not been observed, and patients usually require smaller doses as they improve.

Indications: All conditions of C.N.S. stimulation, except severe paroxysmal conditions requiring parenteral treatment or psychotic conditions requiring Mellaril.

Average Dose: 1 tablet before retiring.

Available: Plexonal Forte—bottles of 50, 250 and 1000 tablets.
Plexonal Forte Suppositories—boxes of 6 and 30.



SANDOZ PHARMACEUTICALS **SANDOZ**, DORVAL, P.Q.

MEDICAL NEWS in brief
(Continued from page 29)

Opinion Research Center of the University of Chicago, used somewhat different indices of socioeconomic level, it is clear that a majority of each group of parents come from the upper-middle or high income groups in our society. Thus, parental economic capability does not appear to be the decisive factor.

The reason for the difference in family help appears to be supplied by the graduate students' answer to the question: "Will you receive any financial support from your parents this year?" Three out of five of the students who did not receive such help, and 44% of all the graduate students in the sample replied, "I don't need any support from them."

The A.A.M.C.'s continuing analysis of medical students' financial affairs is beginning to suggest two broad conclusions regarding medical students' costs of education and sources of help available to pay these costs as they relate to the decline in medical school applicants in 1957-58, 1958-59, and 1959-60. First, it would appear that in 1957-58 the students' cost of medical education began to outrun the financial resources of even those families in the U.S. who are in a fairly comfortable economic position. At the same time, in 1957-58 international events brought about increases in stipends to graduate students in the natural and social sciences with which medicine was and is in no position to compete.

**ANNUAL CANCER
SYMPOSIUM, REGINA,
MAY 29-31, 1961**

The Sixth Annual Cancer Symposium, presented by the staff of the Allan Blair Memorial Clinic and sponsored by the Canadian Cancer Society, Saskatchewan Division, will be held in Regina on May 29, 30 and 31, 1961. The subjects of the Symposium are: Dyspepsia; Cancer of the Head and Neck; Carcinoma of the Stomach; and Diseases of the Thyroid Gland. The guest speakers will include: Paul E. Boyle, D.D.S., Cleveland; Dr. J. P. Gemmell, Winnipeg; Dr. J. A. L. Gilbert, Edmonton; Dr. A. J. Kremen, Minneapolis; Dr. S. F. Marshall, Boston; Dr. W. S. MacComb, Houston; Dr. W. H. Remine,

UNIVERSITY OF TORONTO**Faculty of Medicine
Division of Postgraduate
Medical Education****COURSE IN
RADIOACTIVE ISOTOPES**

An introductory course in the Use of Radioactive Isotopes as Tracers and Therapeutic Agents will be given in the University of Toronto, June 5th to June 16th, (inclusive) 1961. The course is designed for medical and biological scientists who are already working with isotopes in the laboratory or clinic or who are preparing themselves for work in this field.

The fee for the course is \$150.00 (Canadian Funds). For further information write the Division of Postgraduate Medical Education, Faculty of Medicine, University of Toronto. Applications for admission to the course should be made before May 24th, 1961.

**ADVANCED
GRADUATE COURSES**

The Faculty of Medicine of the University of Toronto offers Advanced Graduate Courses in Medicine, Surgery and Obstetrics and Gynaecology, to be held over a six weeks' period, from August 21st to September 29th, 1961.

These are full time courses and will be given for a minimum of ten and a maximum of thirty students in each group.

The fee for the course is \$225.00 (Canadian Funds). For further information and application forms write the Division of Postgraduate Medical Education, Faculty of Medicine, University of Toronto. Applications for admission should be made by June 24th, 1961.

Rochester; Dr. R. J. Walton, Winnipeg; and Dr. Theodore Winship, Washington.

Enquiries may be directed to: Dr. A. J. S. Bryant, Chairman, Arrangements Committee, Allan Blair Memorial Clinic, Regina, Sask.

**NATIONAL HEART
FOUNDATION:
APPOINTMENT OF
EXECUTIVE DIRECTOR**

The appointment of Dr. John B. Armstrong as Executive Director of the National Heart Foundation of Canada was announced recently by the Right Honourable Louis St. Laurent, Foundation President.

Dr. Armstrong is a graduate of the University of Toronto Faculty of Medicine, and has carried out cardiovascular research in Canada, Britain and the United States for over 20 years. He will be responsible for the administrative operation of the Foundation as well as continuing his role as Medical Director, a position he has filled since 1957.

The National Heart Foundation is the federated head of Provincial Heart Foundations in British Columbia, Alberta, Saskatchewan, Manitoba, Ontario, Quebec and the Atlantic provinces. The Foundations support a nationwide heart research program which is financed by the annual Canadian Heart Fund.

**PULMONARY PATHOLOGIC
PHYSIOLOGY OF
CIGARETTE SMOKERS**

Fourteen persons who had never smoked were paired for body surface, height, age and occupational background with 14 who had smoked 20 or more cigarettes daily for a mean of 18 years, persons with signs and symptoms of lung disease being excluded. The pulmonary function of each individual was measured in the laboratory. In the smokers Wilson *et al.* (*New England J. Med.*, 262: 956, 1960) found that there was a significant decrease in inspiratory capacity, total lung capacity, one-second forced vital capacity, maximum breathing capacity, total pulmonary diffusing capacity and membrane diffusing capacity, and a significant increase in the index of pulmonary mixing and the ratio of residual volume to total lung capacity. The observations, therefore, add to the

existing evidence that smoking damages pulmonary tissues and depresses physiological functions.

THE CANADIAN CONFERENCE ON HEALTH CARE

Six associations representing the medical profession, hospitals and insurers have formed a new organization to study the voluntary health insurance field in Canada.

Formation of the Canadian Conference on Health Care was announced following its meeting early in January 1961. The original member organizations in the Conference are the All Canada Insurance Federation, the Canadian Council of Blue Cross Plans, the Canadian Health Insurance Association, the Canadian Hospital Association, the Canadian Life Insurance Officers Association and the Canadian Medical Association.

The decision to form the new organization was made early in 1959 and several meetings were held during 1960. Dr. J. A. McMillan of Charlottetown, P.E.I., is the Conference's first chairman and the other elected officers are Mr. J. K. Macdonald, Toronto, vice-chairman, and Dr. A. D. Kelly, Toronto, secretary.

Dr. McMillan observed that while the organizations which have launched the Canadian Conference on Health Care are diverse in background, they all have a common interest in extending voluntary prepaid medical care and insurance plans. He noted that the extent of current protection already provided by such plans is a matter which is frequently overlooked in discussion of health services for Canadians. A survey in 1959 showed that more than eight million Canadians had protected themselves against the financial hazards of illness through the facilities of voluntary prepaid insurance organizations.

One of the objectives of the Conference is the advancement of the cause of voluntary prepaid medical care and insurance plans. The Conference will encourage the extension of these plans to as many Canadians as possible, and will attempt to stimulate improvement of existing plans in terms of the breadth of their benefits.

It will also gather data and statistical material on prepaid medical care and insurance plans and serve as a forum for exchange of ideas regarding accident and sickness protection.

(Continued on page 32)



BASIC NUMBERS FOR INDIVIDUALIZED PAIN CONTROL

Codeine, combined with acetylsalicylic acid, phenacetin and caffeine, continues to be preferred for the relief of pain. By varying the amount of codeine in this combination, adjustment to individual needs and circumstances is conveniently provided.

"222" TABLETS (white)
Codeine phosphate 1/8 gr.

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Codeine phosphate 1/4 gr.

"292" TABLETS (pink)
Codeine phosphate 1/2 gr.

and when codeine is not required

"217" TABLETS—the synergistic formula basic to Frosst analgesic products.

Dosage: One or two tablets as required.

☎ Telephone narcotic prescription permitted.

Acetylsalicylic acid .. 3 1/2 gr.
Phenacetin 2 1/2 gr.
Caffeine citrate 1/2 gr.



Charles E. Frosst & Co.
MONTREAL CANADA

MEDICAL NEWS in brief
(Continued from page 31)

**DRUG-INDUCED
SYSTEMIC LUPUS
ERYTHEMATOSUS**

Many drugs have been associated with the onset or, more commonly, with an exacerbation of systemic lupus erythematosus (SLE). Perhaps most notable of these are the reactions described in 1954 by several investigators in patients

given hydralazine for hypertension. These reactions occurred after several months of treatment at high doses, mostly after the blood pressure had fallen to normal; and initially resembled early rheumatoid arthritis, and subsequently, if the drug was continued, systemic lupus erythematosus without or with L.E. cells (less than 1% of the treated population). It was assumed that hydralazine had induced reversible lupus in patients in whom there was no prior evi-

dence of connective tissue disease. No reports of follow-up observations are available.

Of 105 hydralazine-treated hypertensive patients studied at the Johns Hopkins Hospital by Shulman and Harvey, two developed a lupus-like syndrome with L.E. cells (*Arthritis & Rheumat.*, 3: 464, 1960). In both, the illness subsided in 2 to 3 months after discontinuation of hydralazine. Follow-up observations, over 4½ and 5½ years respectively, revealed: (1) no recurrence of disease in spite of subsequent lowering of the blood pressure by other means; (2) persistence of abnormal L.E. cell preparations for four years in one, and elevated serum globulins and sedimentation rates in both. In both, fortuitous measurements of serum globulins just before the hydralazine was started revealed them to be elevated; and one had had previous episodes of arthritis and pleurisy. It is suggested that in both patients there may have been some underlying mechanism, either genetic or acquired, that influenced their response to hydralazine.

"Are the xanthines effective in ANGINA PECTORIS?"

(Abstract of the paper with above title)

A favorable response was unequivocally demonstrated with aminophylline when administered intravenously to angina pectoris patients. In sharp contrast the author, noted for his original contributions to cardiovascular research, found oral administration ineffective in all patients tested. This suggested that the failure was correlated with sub-threshold theophylline blood-levels obtained with oral administration.

A 20% alcohol-solution of theophylline (Elixophyllin®) has been shown to provide blood levels comparable to those obtained with I.V. administration of aminophylline. This oral preparation and a placebo (identical in appearance, taste and alcoholic content) were

tested by the electrocardiographic response obtained and by a double-blind clinical evaluation.

The author reported: "In the light of these findings, conclusions derived from animal experiments which have classed theophylline as a 'malignant' coronary vasodilator must be rejected for man." Elixophyllin administered orally to 30 patients was effective "not only in control of symptoms but in its modifying action on the electrocardiographic response to standard exercise. The efficacy of this preparation is based on the rapid absorption and attainment of high blood levels made possible by the vehicle employed."

(Russek, H. I., *Am. J. Med. Sc.* Feb., 1960)

HEALTH EDUCATION VIA TELEVISION

A recent survey on public affairs broadcasting at the community level, published by the Television Information Office of New York, indicates that there is no category which lends itself more readily to television programming than health and social problems. This survey reported that public response to television programming in the health and social problems area indicates that audiences are vitally interested in these subjects, and that spotlighting such problems on television offers an opportunity for making a real contribution to community progress. All of which points to the conclusion that medical societies are missing a real opportunity when they overlook the medium of television as an important vehicle for educating the public on health subjects, as well as for improving the doctor image in the eyes of the public. Under-scoring the variety of constructive types of programs which are currently being produced in the public affairs field, the survey describes several television programs which medical societies have sponsored, produced or participated in. — *A.M.A. PR Doctor*, December 1960.

CLINICAL REFERENCE DATA ON

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FORMULA: A hydro-alcoholic solution of theophylline. Each 15 cc. (1 tablespoonful) contains 80 mg. theophylline (equivalent to 100 mg. aminophylline) and 20% ethyl alcohol.

ORAL DOSAGE: First 2 days—doses of 45 cc. t.i.d. (before breakfast, at 3 P.M., and on retiring).
Thereafter—doses of 30 cc. t.i.d. (at same times).

AVAILABLE: Prescription only; bottles of 16 fl. oz. and 1 gallon.

SPECIAL REPRINT: Reprint of Dr. Russek's paper abstracted above on request.

Sherman Laboratories
Windsor, Ontario

EXTENSION COURSE IN NURSING ADMINISTRATION

Hospital administrators may be interested in the recent announcement that the Canadian Hospital Association and Canadian Nurses Association are jointly sponsoring an Extension Course in Nursing Unit Administration. Recognizing the lack of nurses qualified to assume head nurse positions in hospitals, a joint committee of the two national associations prepared a brief which was submitted to the W. K. Kellogg Foundation in 1959, recommending the establishment of an eight-month extension course to assist nurses who are unable to enrol in existing university courses and who are currently occupying positions as head nurses or assistant head nurses in hospitals.

In July 1960 the Kellogg Foundation agreed to provide partial financial support for this project for a period of four years. Further revenue will be procured from tuition fees set at \$100 per student. Students will be responsible for their own travel and maintenance expenses while attending the two five-day workshops included in the course. This extension course will be presented through the medium of intramural sessions or workshops and home study. The workshops will be held on a regional basis, the first one being planned for September 1961. Home-study sessions will consist of approximately 14 lessons which will be followed by a final workshop in May 1962.

The extension course in nursing unit administration has been designed to raise the quality of patient care by assisting head nurses to improve their managerial skills which are so important in the present-day complex hospital situation. It is emphasized that this extension course is not by any means a substitute or replacement for such courses offered by Canadian universities but is planned to improve the nurses' performance on the job through an in-service type of program which is required in particular by nurses in outlying or rural areas.

Enquiries regarding this extension course should be directed to Director, Extension Course in Nursing Unit Administration, 25 Imperial Street, Toronto 7.

(Continued on page 34)



NEW NUMBERS FOR RELIEF OF PAIN PLUS TENSION

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Phenacetin	150 mg.)		
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Bottles of 12 and 100 tablets.

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Charles E. Frosst & Co.
MONTREAL CANADA

MEDICAL NEWS in brief
(Continued from page 33)

**NEWS FROM THE
AMERICAN COLLEGE
OF PHYSICIANS**

Those who attended the 41st Annual Session of the American College of Physicians in San Francisco will remember the popularity of the basic science and clinical investigation sessions and the TV sessions. So that men interested primarily in basic science and clinical investigation can attend both, they have been scheduled at different times during the 42nd Annual Session, to be held in Bal Harbour, Miami Beach, Fla., May 8-12, 1961. To offer a third meeting in the afternoon it has been decided to run the television clinics in the afternoon. Hospital clinics will be conducted at one of the local teaching centres and brought to the Americana via television. As usual, morning lectures, panels and clinical sessions will round out a well-balanced program.

In scheduling this meeting at the beautiful Americana Hotel in the Bal Harbour area of Miami Beach, the College hopes that many will wish to bring their wives. All the hotels in this area are on the shore, and swimming, deep-sea fishing, golf, sightseeing and sun bathing are available. Monday evening the local committees are arranging for a "Pops" concert by the Miami University Symphony Orchestra. Wednesday evening the impressive Convocation will be held at the Americana. The President of the Rockefeller Foundation will be the speaker. Plans are being made by the local committees to make the banquet on Thursday night a memorable occasion.

Always an important part of the Annual Session is the schedule of activities planned for the ladies by the local committees. The location of all the hotels on the edge of the Atlantic will appeal to those who like bathing and sunbathing. For visitors interested in the arts, sightseeing and nature, many fascinating tours have been arranged, including trips to art museums, bird sanctuaries, etc. The combination of these daytime activities with the evening entertainment features is bound to make this Session an opportunity for members and their wives to enjoy themselves.

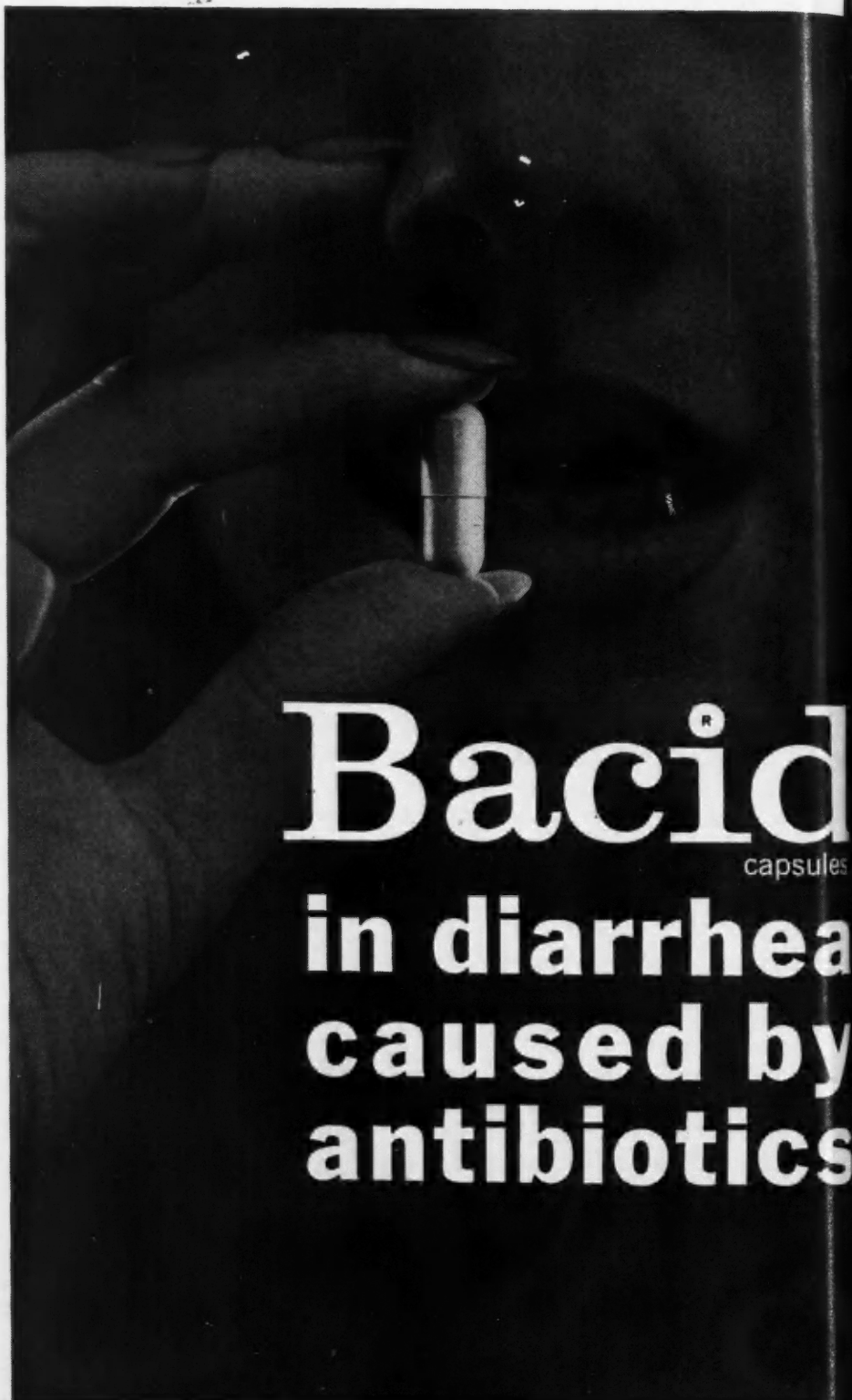
The Americana Hotel will be headquarters for this session; how-

ever, since no hotel in the area has facilities to accommodate the entire membership, several excellent hotels and motels have set aside rooms for College members. All of these hotels and motels are completely air-conditioned and have swimming facilities.

Further information about the 42nd Annual Session can be obtained from: American College of Physicians, 4200 Pine Street, Philadelphia 4, Pennsylvania.

**INTERNATIONAL COLLEGE
OF SURGEONS, 26th
ANNUAL CONGRESS OF
THE NORTH AMERICAN
FEDERATION**

The North American Federation of the International College of Surgeons — comprised of eight sections: The United States, Canada, Mexico, Costa Rica, Nicaragua, El Salvador, Honduras and Haiti; the countries of Guatemala and Panama; and over 7500 member sur-



Bacid
capsules
**in diarrhea
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geons—will hold its 26th Annual Congress, May 14-18, 1961, at the Palmer House, Chicago, Illinois.

Dr. M. Leopold Brodny, Co-Chairman of the Program Committee, has disclosed that the principal themes of this meeting will be directed not only to the surgeon's professional life but to those factors which can enhance his education, his humanitarianism, his hobbies, and his international relations. Dr. Brodny is Chief of Urology, Weiss Memorial Hospital,

and Chairman of the Department of Urology of the Strauss Medical Group, Chicago.

The meeting will begin on Sunday, May 14, with instructional courses in Life Estate Planning for Surgeons, Medical Photography, and the Art of Medical Illustrating. Addressing the latter course will be the well-known medical illustrator, Dr. Frank H. Netter, who will also deliver the Max Thorek Memorial Lecture. The educational portion of the program will include a Con-

ference on Medical Education for the Surgeon, conducted by Dr. Ralph E. Snyder, Dean and Chief Executive Officer, New York Medical College, New York City, and General Program Committee Chairman of this ICS North American Federation Congress.

The Specialty Sections of the program—including sections of Obstetrics and Gynecologic Surgery, Coloproctology, Neurosurgery, Ophthalmologic, Otolaryngologic, Orthopedic, Traumatic, Urologic and Plastic Surgery—will begin their four, day-long meetings on Monday, May 15. These specialty meetings will be conducted concurrently with the General Assembly, to which each specialty will contribute a major two-hour session of their individual programs. This year, as in past years, the Specialty Sections are arranging for the attendance of widely known foreign surgeons to contribute to the Specialty meetings and to deliver addresses to the General Assembly. Among those expected are Prof. Dr. A. M. Dogliotti, Torino, Italy; Dr. Roberto-Caldeyro-Garcia, Montevideo, Uruguay; Dr. Marc Iselin, Paris, France; Dr. José Ramirez D., Guayaquilli, Ecuador; and Dr. Mikio Yamagishi, Yokohama, Japan.

Bacid **acts physiologically...** **to reestablish a normal** **intestinal flora...**

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normal in consistency,
form, color and odor...

and thus restore regular
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COUNCIL ON MEDICAL **TELEVISION**

On April 6 and 7, 1961, the Council on Medical Television will hold its 3rd annual meeting at the Clinical Center, National Institutes of Health, Bethesda, Maryland. Among subjects planned for the agenda are (1) a discussion by representatives of organized medicine on the use of open-circuit TV as a means of supplementing post-graduate medical education, (2) the role of the medical school in health-science TV programming for the lay public, (3) the status of medical TV research studies, and (4) reports on new equipment and developments in medical TV installations about the country.

The Council is an activity of the Institute for Advancement of Medical Communication with offices at 33 East 68th Street, New York 21, New York. Frank M. Woolsey, Jr., M.D., is Chairman of the Council and John K. Mackenzie, Executive Secretary.

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